

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO. 20210419-IN0000337
DATE OF NOTICE: APRIL 19, 2021
DATE OF HEARING: MAY 26, 2021
DATE RESPONSE DUE: JUNE 3, 2021

The Office of Water Quality proposes the following NPDES DRAFT PERMIT:

MAJOR – RENEWAL

UNITED STATES STEEL CORPORATION – MIDWEST PLANT, NPDES Permit No. IN0000337, PORTER COUNTY, 6300 U.S. Highway 12, Portage, IN. This industrial facility is a steel mill that discharges to the Portage – Burns Waterway via existing permitted outfalls. The discharges consist of non-contact cooling water, treated process wastewaters, and storm water. The facility withdraws its water from Lake Michigan. On October 1, 2020, the permittee submitted a permit renewal application and a streamlined mercury variance application pursuant to 327 IAC 5-3.5.

The draft permit and related documents are posted online at <https://www.in.gov/idem/6395.htm>

The proposed decision to issue a permit is tentative. Interested persons are invited to submit written comments on the Draft permit. All comments must be postmarked no later than the Response Date noted to be considered in the decision to issue a Final permit. Deliver or mail all requests or comments to the attention of the Permit Manager at the address below.

I. Streamlined Mercury Variance (SMV): The SMV establishes a streamlined process for obtaining a variance from a water quality criterion used to establish a water quality-based effluent limitation for mercury in an NPDES permit. The SMV application includes a pollutant minimization program plan (PMPP), which addresses the identification and minimization of mercury discharges to the environment from the permitted facility in accordance with 327 IAC 5-3.5-9. IDEM proposes to incorporate the SMV as a condition of the NPDES renewal permit in accordance with 327 IAC 5-3.5-6, and has included the requirements of the applicant's PMPP and interim discharge limits for mercury calculated based on the procedures of 327 IAC 5-3.5-8. The SMV will remain in effect until the NPDES permit expires pursuant to IC 13-14-8-9. IDEM is proposing to grant a new SMV for Outfall 004.

II. Contact Person: Jennifer Elliot, Office of Water Quality/NPDES Permits Branch, 100 N Senate Ave, Indianapolis, IN 46204-2251; 317/232-8702, jelliot@idem.in.gov.

III. Public Hearing: IDEM has decided to hold a Public Hearing for this Draft Permit based on potential public interest. The purpose of the Hearing is to allow public participation in the determination of the terms and conditions of the NPDES permit. Interested parties will have the opportunity to provide oral comments to the IDEM representatives at the Hearing.

Due to COVID-19 restrictions, IDEM will hold a virtual Public Hearing for this permit on May 26, 2021, at 6:00 pm CST (7:00 pm EST). To participate in the virtual Public Hearing, please visit <https://us06web.zoom.us/j/86414104747?pwd=VVpsOWErSjRQekRyV1RVdms5ZHlpZz09&from=addon> on May 26, 2021 at 6:00 pm CST. To participate in the hearing by phone, you may call (312) 626-6799. The Meeting ID is 864 1410 4747 and the passcode is 868757.

IV. Comments: IDEM is required, by Rule 327 IAC 5-3, to publish this Notice & solicit public comment. The draft permit and related documents shall be posted on IDEM's web site at <https://www.in.gov/idem/6395.htm>. All written comments must be received by IDEM by no later than the Response Due date of this Notice. Send written correspondence via first class mail to: IDEM/OWQ/NPDES/PS, 100 N Senate Ave Rm 1255, Indianapolis, IN 46204, or Email to the Permit Manager at Jelliot@idem.in.gov. Questions or comments may also be sent to owqwwper@idem.IN.gov. Notices of subsequent action will ONLY be sent to persons providing their contact address or Email address & cannot be made to persons who fail to request such notifications.

For your rights & responsibilities see: Public Notices: <http://www.in.gov/idem/5474.htm>; Citizen Guide: <https://www.in.gov/idem/6900.htm>. Please tell others whom you think would be interested in this matter.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

April 19, 2021

VIA ELECTRONIC MAIL

Mr. David Reaume, Plant Manager
United States Steel – Midwest Plant
6300 U.S. Highway 12
Portage, IN 46368

Dear Mr. Reaume:

Re: NPDES Permit No. IN0000337
Draft Permit
United States Steel – Midwest Plant
Portage, IN – Porter County

Your application and supporting documents have been reviewed and processed in accordance with rules adopted under 327 IAC 5. Enclosed is a copy of the draft NPDES Permit.

Pursuant to IC 13-15-5-1, IDEM will publish the draft permit document online at <https://www.in.gov/idem/5474.htm>. Additional information on public participation can be found in the "Citizens' Guide to IDEM", available at <https://www.in.gov/idem/6900.htm>. A 45-day comment period is available to solicit input from interested parties, including the public. A general notice is being published in the Northwest Indiana Times newspaper in Lake County.

In addition, IDEM will hold a Public Hearing for this Draft Permit based on potential public interest. The purpose of the Hearing is to allow public participation in the determination of the terms and conditions of the NPDES permit. Interested parties will have the opportunity to provide oral comments to the IDEM representatives at the Hearing. Due to COVID-19 restrictions, IDEM will hold a virtual Public Hearing for this permit on May 26, 2021, at 6:00 pm CST (7:00 pm EST). To participate in the virtual Public Hearing, please visit <https://us06web.zoom.us/j/86414104747?pwd=VVpsOWErSjRQekRyV1RVdms5ZHlpZz09&from=addon> on May 26, 2021 at 6:00 pm CST.

Please review this draft permit and associated documents carefully to become familiar with the proposed terms and conditions. Comments concerning the draft permit should be submitted in accordance with the procedure outlined in the enclosed public notice form. We suggest that you meet with us to discuss major concerns or objections you may have with the draft permit.



Mr. David Reaume, Plant Manager

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Questions concerning this draft permit may be addressed to Jennifer Elliot of my staff, at 317/232-8702 or Jelliot@idem.in.gov.

Sincerely,

A handwritten signature in black ink that reads "Nikki Gardner". The signature is written in a cursive, flowing style.

Nikki Gardner, Chief
Industrial NPDES Permits Section
Office of Water Quality

Enclosures

cc: Porter County Health Department
Timothy Sullivan, USS Environmental Coordinator
Monique Bebly, Certified Operator
Chief, Permits Section, U.S. EPA, Region 5
Nick Ream IDEM Inspector
IDEM Northwest Regional Office

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Clean Water Act" or "CWA"), and IDEM's authority under IC13-15,

UNITED STATES STEEL CORPORATION – MIDWEST PLANT

is authorized to discharge from a steel manufacturing facility that is located at 6300 U.S. Route 12, in Portage, Indiana, to receiving waters identified as the Portage-Burns Waterway in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, IV, V, and VI hereof. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: _____

Expiration Date: _____

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and forms as are required by the Indiana Department of Environmental Management no later than 180 days prior to the date of expiration.

Issued on _____ for the Indiana Department of Environmental Management.

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfall 002, located at Latitude 41° 37' 23" Longitude -87° 10' 33". The discharge is limited to non-contact cooling water and stormwater. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Portage-Burns Waterway. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1][2][9][10]

Outfall 002

Table 1

<u>Parameter</u>	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
	Monthly <u>Average</u>	Daily <u>Maximum</u>	<u>Units</u>	Monthly <u>Average</u>	Daily <u>Maximum</u>	<u>Units</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow	Report	Report	MGD	-	-	-	1 X Weekly	24 Hour Total
Oil & Grease[8]	-	-	-	-	Report	mg/l	1 X Weekly	Grab
TRC[3,4,6]	0.03	0.05[5]	lbs/day	0.01	0.02	mg/l	Daily [7]	Grab
TSS	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
COD	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
Ammonia (as N)-	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
Zinc[11]	-	-	-	-	Report	mg/l	Quarterly[9]	Grab

Table 2

<u>Parameter</u>	Quality or Concentration			Monitoring Requirements	
	Daily <u>Minimum</u>	Daily <u>Maximum</u>	<u>Units</u>	<u>Frequency</u>	<u>Sample Type</u>
pH [12]	6.0	9.0	s.u.	Weekly	Grab

- See Part I.B. of the permit for the Minimum Narrative Limitations.
- In the event that a new water treatment additive is to be used that will contribute to this Outfall, or changes are to be made in the use of water treatment additives, including dosage, the permittee must apply for and receive approval from IDEM prior to such discharge. Discharges of any such additives must meet Indiana water quality standards. The permittee must apply for permission to use water treatment additives by completing and submitting State Form 50000 (Application for Approval to Use Water Treatment Additives) currently available at: <http://www.in.gov/idem/5157.htm>
- The monthly average water quality-based effluent limit (WQBEL) for Total Residual Chlorine (TRC) is less than the limit of quantitation (LOQ) as specified below in

footnote [4]. Compliance with the calculated monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. When calculating the monthly average effluent level, daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.

- [4] The daily maximum WQBEL for TRC is greater than or equal to the LOD but less than the LOQ as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.

The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Chlorine	4500-Cl-D-2000, E-2000 or 4500-Cl-G-2000	0.02 mg/l	0.06 mg/l

Case-Specific LOD/LOQ

The permittee may determine and use a case specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, prior to use. The LOD and LOQ shall be determined as established in 327 IAC 5-2-11.6(h)(2)(B).

- [5] Compliance with the daily maximum mass value will be demonstrated if the calculated mass value for TRC is less than 0.16 lbs/day.
- [6] See Part I.I of the permit for the Pollutant Minimization Program (PMP) requirements.
- [7] Monitoring for TRC shall be 1 X Daily during Zebra and Quagga mussel intake chlorination and continue for three (3) additional days after Zebra and Quagga mussel treatment has been completed.
- [8] If oil and grease is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated. The facility is required to investigate and eliminate any significant or measured concentration of oil and grease (quantities in excess of 5 mg/l). The intent of this requirement is to assure that oil and grease is not added to once-through cooling water in measurable quantities (5 mg/l).

- [9] All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches and at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. For each sample taken, the permittee shall record the duration and total rainfall of the storm event, the number of hours between beginning of the storm measured and the end of the previous measurable rain event, and the outside temperature at the time of sampling. A grab sample shall be taken during the first thirty (30) minutes of the discharge (or as soon thereafter as practicable).
- [10] The Storm Water Monitoring and Non-Numeric Effluent Limits and the Storm Water Pollution Prevention Plan (SWP3) requirements can be found in Part I.D. and I.E of this permit.
- [11] The permittee shall measure and report the identified metal as total recoverable metal.
- [12] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Monitoring Report form.

2. The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfall 003 located at Latitude 41° 37' 35" Longitude -87° 10' 33". The discharge is limited to non-contact cooling water and stormwater. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Portage-Burns Waterway. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1][2][9][10]

Outfall 003

Table 1

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Monitoring Requirements</u>	
	<u>Monthly Average Report</u>	<u>Daily Maximum Report</u>		<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	-	-	MGD	-	-	-	1 X Weekly	24 Hour Total
Oil & Grease[8]	-	-	-	-	Report	mg/l	1 X Weekly	Grab
TRC[3,4,6]	1.3	2.5[5]	lbs/day	0.01	0.02	mg/l	Daily [7]	Grab
TSS	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
COD	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
Ammonia (as N)-	-	-	-	-	Report	mg/l	Quarterly[9]	Grab
Zinc[11]	-	-	-	-	Report	mg/l	Quarterly[9]	Grab

Table 2

<u>Parameter</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Monitoring Requirements</u>	
	<u>Daily Minimum</u>	<u>Daily Maximum</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
pH[12]	6.0	9.0	s.u.	Weekly	Grab

- [1] See Part I.B. of the permit for the Minimum Narrative Limitations.
- [2] In the event that a new water treatment additive is to be used that will contribute to this Outfall, or changes are to be made in the use of water treatment additives, including dosage, the permittee must apply for and receive approval from IDEM prior to such discharge. Discharges of any such additives must meet Indiana water quality standards. The permittee must apply for permission to use water treatment additives by completing and submitting State Form 50000 (Application for Approval to Use Water Treatment Additives) currently available at: <http://www.in.gov/idem/5157.htm>
- [3] The monthly average water quality-based effluent limit (WQBEL) for Total Residual Chlorine (TRC) is less than the limit of quantitation (LOQ) as specified below in footnote [4]. Compliance with the calculated monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. When calculating the monthly average effluent level,

daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.

- [4] The daily maximum WQBEL for TRC is greater than or equal to the LOD but less than the LOQ as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.

The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Chlorine	4500-Cl-D,E or 4500-Cl-G	0.02 mg/l	0.06 mg/l

Case-Specific LOD/LOQ

The permittee may determine and use a case specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, prior to use. The LOD and LOQ shall be determined as established in 327 IAC 5-2-11.6(h)(2)(B).

- [5] Compliance with the daily maximum mass value will be demonstrated if the calculated mass value is less than 7.6 lbs/day.
- [6] See Part I. of the permit for the Pollutant Minimization Program (PMP) requirements.
- [7] Monitoring for TRC shall be 1 X Daily during Zebra and Quagga mussel intake chlorination and continue for three (3) additional days after Zebra and Quagga mussel treatment has been completed.
- [8] If oil and grease is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated. The facility is required to investigate and eliminate any significant or measured concentration of oil and grease (quantities in excess of 5 mg/l). The intent of this requirement is to assure that oil and grease is not added to once-through cooling water in measurable quantities (5 mg/l).
- [9] All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches and at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. For each sample taken, the permittee shall record the duration and total rainfall of the storm event, the number of hours between beginning of the storm measured and the end of the previous measurable

rain event, and the outside temperature at the time of sampling. A grab sample shall be taken during the first thirty (30) minutes of the discharge (or as soon thereafter as practicable).

- [10] The Storm Water Monitoring and Non-Numeric Effluent Limits and the Storm Water Pollution Prevention Plan (SWP3) requirements can be found in Part I.D. and I.E of this permit.
- [11] The permittee shall measure and report the identified metal as total recoverable metal.
- [12] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Monitoring Report form.

3. The permittee is authorized to discharge from the outfalls listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfall 004 located at Latitude 41° 37' 51" Longitude -87° 10' 33.6". The discharge is limited to non-contact cooling water (NCCW), stormwater, and process wastewater from internal Outfalls 104 and 204 (Administrative Outfall 304). Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into Portage-Burns Waterway. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1] [2]

Outfall 004

Table 1

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Monitoring Requirements</u>	
	<u>Monthly Average Report</u>	<u>Daily Maximum Report</u>		<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow			MGD	-	-	-	5 X Weekly	24 Hr Total
Oil & Grease[19]	-	-	-	-	Report	mg/l	5 X Weekly	Grab
TRC[3,4,6,9]	1.4	2.8[5]	lbs/day	0.01	0.02	mg/l	Daily[21]	Grab
Silver[7,9]	0.012	0.021	lbs/day	0.076	0.13	ug/l	1 X Monthly	24 Hr Comp
F. Cyanide [9,12]	1.2	2.1	lbs/day	0.0075	0.013	mg/l	2 X Monthly	Grab
Cadmium[7]	1.2	2.1	lbs/day	0.0077	0.013	mg/l	1 X Monthly	24 Hr Comp
Copper[7]	4.7	8.2	lbs/day	0.030	0.052	mg/l	1 X Weekly	24 Hr Comp
Nickel[7]	31	54	lbs/day	0.21	0.36	mg/l	1 X Monthly	24 Hr Comp
Lead[7]	5.8	9.9	lbs/day	0.038	0.066	mg/l	1 X Monthly	24 Hr Comp
Mercury[13,7,9]								
WQBELs	0.00018	0.00045	lbs/day	1.3	3.2	ng/l	6 X Annually[12]	Grab
Interim Discharge Limit [16, 20]	-----	-----	-----	18	Report	ng/l	6 X Annually[12]	Grab
Formaldehyde[13,14]								
Interim	Report	Report	lbs/day	Report	Report	mg/l	2 X Monthly	Grab
Final	20	34	lbs/day	0.14	0.24	mg/l	2 X Monthly	Grab
Hexavalent								
Chromium[17,18]	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	Grab
Whole Effluent Toxicity (WET)[10]								
Acute	-	-		-----	1.0	TUa	Quarterly[11]	24 Hr Comp.
Chronic-	-	-		2.0	-----	TUc	Quarterly[11]	24 Hr Comp.

Table 2

<u>Parameter</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Monitoring Requirements</u>	
	<u>Daily Minimum</u>	<u>Daily Maximum</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
pH [8]	6.0	9.0	s.u.	5 X Weekly	Grab

[1] See Part I.B. of the permit for the Minimum Narrative Limitations.

[2] In the event that changes are to be made in the use of water treatment additives including dosage rates contributing to this Outfall, the permittee shall notify the Indiana Department of Environmental Management as required in Part II.C.1 of this

permit. The use of any new or changed water treatment additives or dosage rates shall not cause the discharge from any permitted outfall to exhibit chronic or acute toxicity. Acute and chronic aquatic toxicity information must be provided with any notification regarding any new or changed water treatment additives or dosage rates.

- [3] The monthly average water quality-based effluent limits (WQBEL) for Total Residual Chlorine is less than the limit of quantitation (LOQ) as specified below (see footnote [9]). Compliance with the monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. Daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.
- [4] The daily maximum WQBEL for Total Residual Chlorine is greater than or equal to the LOD but less than the LOQ as specified below (see footnote [9]). Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.
- [5] Compliance with the daily maximum mass value will be demonstrated if the calculated mass value is less than 8.5 lbs/day for Total Residual Chlorine.
- [6] See Part I.I for the Pollutant Minimization Program requirements.
- [7] The permittee shall measure and report the identified metal in total recoverable form.
- [8] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Monitoring Report form.
- [9] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Chlorine, Total residual	4500-Cl D-2000, E-2000 or G-2000	0.02 mg/l	0.06 mg/l
Cyanide, Free	OIA-1677-09	0.5 µg/l	1.6 µg/l
Cyanide, Free	Kelada-01	0.5 µg/l	1.6 µg/l
Mercury	1631E	0.2 ng/l	0.5 ng/l
Silver	200.8, Rev. 5.4 (1994) Selection Ion Monitoring	0.005 ug/l	0.016 µg/l

- [10] See Part I.F of the permit for Whole Effluent Toxicity Testing requirements.

- [11] Samples shall be taken once at any time during each of the four annual quarters:

- (A) January-February-March;
- (B) April-May-June;
- (C) July-August-September; and
- (D) October-November-December.

For quarterly monitoring, in the first quarter for example, the permittee may conduct sampling within the month of January, February or March. The result from this reporting timeframe shall be reported on the March DMR, regardless of which of the months within the quarter the sample was taken.

- [12] Effluent mercury monitoring shall be conducted 6 X annually, monitoring in the months of February, April, June, August, October and December of each year for the term of the permit.
- [13] See Part I.J of the permit for Reopening Clauses.
- [14] The permittee has a schedule of compliance of up to sixty (60) months as outlined in Part I.G. of the permit in which to meet the final effluent limitations for Formaldehyde. The interim limitations shall apply until the final limits take effect.
- [15] See Part V for additional mercury requirements.
- [16] The permittee applied for, and received, a variance from the water quality criterion used to establish the referenced mercury WQBEL under 327 IAC 5-3.5. For the term of this permit, the permittee is subject to the interim discharge limit developed in accordance with 327 IAC 5-3.5-8.

The permittee shall report both a daily maximum concentration and an annual average concentration for total mercury. The annual average value shall be calculated as the average of the measured effluent daily values from the most recent twelve-month period. Reporting of the annual average value for mercury is not required during the first year of the permit term.

Calculating and reporting of the annual average value for mercury is only required for the months when samples are taken for mercury.

- [17] Hexavalent chromium shall be measured and reported as dissolved metal. The hexavalent chromium sample type shall be by grab method. The maximum holding time for a hexavalent chromium sample is 28 days under 40 CFR 136.3(e), Table II. However, as noted in footnote 20 of Table II, to achieve the 28-day holding time, the ammonium sulfate buffer solution specified in EPA Method 218.6 must be used. This holding time allowance of 28-days supersedes the preservation and holding time requirements in the approved hexavalent chromium methods, unless this supersession would compromise the measurement, in which case the preservation

and holding time requirements [the sample must be analyzed within 24 hours of collection] in the method must be followed.

- [18] For both total chromium and hexavalent chromium, the following apply:
- (a) In instances when there is insufficient sample volume (or no sample at all), the permittee shall document NODI code F (Insufficient flow for sampling) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.
 - (b) In instances where there is no flow during a 24-hour period, the permittee shall document NODI code C (No Discharge) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.
- [19] If oil and grease is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated. The facility is required to investigate and eliminate any significant or measured concentration of oil and grease (quantities in excess of 5 mg/l). The intent of this requirement is to assure that oil and grease is not added to once-through cooling water in measurable quantities (5 mg/l).
- [20] The interim discharge limit is the annual average. Compliance with the interim discharge limit will be achieved when the annual average measured over the most recent (rolling) twelve-month period is less than the interim discharge limit.
- Compliance with the interim discharge limit will demonstrate compliance with mercury discharge limitations of this permit for this outfall
- [21] Monitoring for TRC shall be 1 X Daily during Zebra and Quagga mussel intake chlorination and continue for three (3) additional days after Zebra and Quagga mussel treatment has been completed.

4. The permittee is authorized to discharge from the outfalls listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfalls 104 and 204 located at Latitude 41° 37' 50.4" Longitude -87° 10' 31.7" and Latitude 41° 37' 50.8" Longitude -87° 10' 20". The discharge is limited to treated process wastewater, backwash and washdown water, Greenbelt II landfill leachate, blowdown from Portside Energy, and the U.S. Steel Midwest intake. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge and prior to commingling with another wastestream. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1]

Outfalls 104 and 204

Table 1

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Monitoring Requirements	
	Monthly Average	Daily Maximum		Monthly Average	Daily Maximum		Measurement Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hr Total
TSS	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr Comp
Oil & Grease	-	Report	lbs/day	Report	Report	mg/l	5 X Weekly	3 Grabs/24 Hr Comp[2]
Total Chromium[3][7]	Report	Report	lbs/day	Report	Report	mg/l	Daily	24 Hr Comp
Zinc[3]	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr Comp
Lead[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Nickel[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Cadmium[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Copper[3]	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr Comp
Silver[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
T. Cyanide [4]	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	Grab
Hexavalent Chromium[5][7]	Report	Report	lbs/day	Report	Report	mg/l	Daily	Grab
Naphthalene	-	Report	lbs/day	-	Report	mg/l	Monthly	Grab
Tetrachloro-ethylene	-	Report	lbs/day	Report	Report	mg/l	Monthly	Grab
TTO[6]	-	Report	lbs/day	-	Report	mg/l	Monthly	24 Hr Comp
Fluoride	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp

- [1] These parameters are limited at the Administrative Outfall 304. The effluent limitations for each parameter at the Administrative Outfall 304 shall be based on the combined effluent flow from Internal Outfall 104 and Internal Outfall 204. Compliance shall be demonstrated by calculating a flow weighted mass balance between Internal Outfalls 104 and 204 and reported at the Administrative Outfall 304.
- [2] A minimum of three (3) grab samples shall be collected at equally spaced time intervals for the duration of the discharge within a twenty-four (24) hour period.

Each sample shall be analyzed individually, and the arithmetic mean of the concentrations reported as the value for the twenty-four (24) hour period.

- [3] The permittee shall measure and report the identified metal in total recoverable form.
- [4] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Cyanide, Total	335.4, Rev. 1.0 (1993) or 4500-CN E-1999	5 µg/l	16 µg/l
Cyanide, Total	Kelada-01	0.5 µg/l	1.6 µg/l

- [5] Hexavalent chromium shall be measured and reported as dissolved metal. The hexavalent chromium sample type shall be by grab method. The maximum holding time for a hexavalent chromium sample is 28 days under 40 CFR 136.3(e), Table II. However, as noted in footnote 20 of Table II, to achieve the 28-day holding time, the ammonium sulfate buffer solution specified in EPA Method 218.6 must be used. This holding time allowance of 28-days supersedes the preservation and holding time requirements in the approved hexavalent chromium methods, unless this supersession would compromise the measurement, in which case the preservation and holding time requirements [the sample must be analyzed within 24 hours of collection] in the method must be followed.
- [6] The limitation for TTO (Total Toxic Organics) applies to the summation of all quantifiable values greater than 0.01 mg/l for all toxic organics listed under 40 CFR 433.11(e) which are reasonably expected to be present. This is a federal effluent guideline based limitation and is not an authorization to discharge toxic organic compounds at levels which cause or may cause water quality violations. The discharge of organic compounds at levels which cause or may cause water quality violations is prohibited. The intent of this limitation is to assure that any solvent or other products in use at the plant, which contain any of the listed toxic organic compounds, are disposed of properly, and not dumped, spilled, discharged or leaked.

Certification Statement

In lieu of monthly monitoring for TTO, the party responsible for signing the monthly discharge monitoring report (DMR) forms may make the following statement, as part of the DMR: "Based on my inquiry of the persons directly responsible for managing compliance with the permit limitations for TTO, I certify that, to the best of my knowledge and belief, no disposal of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the Toxic Organic Pollutant Management Plan submitted to the Compliance Data Section of the Office of Water

Quality, as required by this permit.” The Certification Statement may not be used until completion of the Toxic Organic Pollutant Management Plan required by Part I.H of this permit. However, the certification statement may be used as long as there have been no changes at the facility that would significantly alter the current TOPMP, and the permittee is following the current TOPMP that was developed under the previous permit until the new plan is completed as required by Part I.H of this permit.

If the above-mentioned responsible party is unable to make the above Certification Statement because of discharge or spills of any TTO compounds, the Permittee is required to notify IDEM in accordance with Part II.C.3 of this permit.

[7] For both total chromium and hexavalent chromium, the following apply:

- (a) In instances when there is insufficient sample volume (or no sample at all), the permittee shall document NODI code F (Insufficient flow for sampling) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.
- (b) In instances where there is no flow during a 24-hour period, the permittee shall document NODI code C (No Discharge) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.

5. The permittee shall comply with the limitations at Outfall 304 below in accordance with the terms and conditions of this permit. This is an administratively created outfall which does not physically exist. Compliance with the below limitations shall be demonstrated by using the results of the sampling at Internal Outfalls 104 and 204 and a flow weighted calculation to determine the values to be reported at this outfall.

DISCHARGE LIMITATIONS [1][7]

Outfall 304

Table 1

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Monitoring Requirements	
	Monthly Average	Daily Maximum		Monthly Average	Daily Maximum		Measurement Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hr Total
TSS	1147	2290	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr Comp
Oil & Grease	-	765	lbs/day	Report	Report	mg/l	5 X Weekly	3 Grabs/24 Hr Comp[2]
T. Chromium[3,7]	10.0	30.0	lbs/day	Report	Report	mg/l	Daily	24 Hr Comp
Zinc[3]	10.0	30.0	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr Comp
Lead[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Nickel[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Cadmium[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
Copper[3]	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr Comp
Silver[3]	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp
T. Cyanide [4]	3.41	7.95	lbs/day	Report	Report	mg/l	5 X Weekly	Grab
Hex. Chromium[5,7]	0.17	0.51	lbs/day	Report	Report	mg/l	Daily	Grab
Naphthalene	-	0.86	lbs/day	-	Report	mg/l	Monthly	Grab
Tetrachloro-ethylene	-	1.29	lbs/day	Report	Report	mg/l	Monthly	Grab
TTO[6]	-	38.43	lbs/day	-	Report	mg/l	Monthly	24 Hr Comp
Fluoride	150	400	lbs/day	Report	Report	mg/l	Monthly	24 Hr Comp

- [1] For all of the parameters at this outfall, the permittee shall sample for the parameters at Outfalls 104 and 204 on the same day and use the results from that sampling and the following equations to calculate the daily values to be reported at this outfall (in the below equations, F is flow, M is mass, and C is concentration):

$$F_{304} = F_{104} + F_{204}$$

$$M_{304} = M_{104} + M_{204}$$

$$C_{304} = M_{304} / (F_{304} \times 8.3454)$$

- [2] A minimum of three (3) grab samples shall be collected at equally spaced time intervals for the duration of the discharge within a twenty-four (24) hour period. Each sample shall be analyzed individually, and the arithmetic mean of the concentrations reported as the value for the twenty-four (24) hour period.

- [3] The permittee shall measure and report the identified metal in total recoverable form.
- [4] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Cyanide, Total	335.4, Rev. 1.0 (1993) or 4500-CN ⁻ E-1999	5 µg/l	16 µg/l
Cyanide, Total	Kelada-01	0.5 µg/l	1.6 µg/l

- [5] Hexavalent chromium shall be measured and reported as dissolved metal. The hexavalent chromium sample type shall be by grab method. The maximum holding time for a hexavalent chromium sample is 28 days under 40 CFR 136.3(e), Table II. However, as noted in footnote 20 of Table II, to achieve the 28-day holding time, the ammonium sulfate buffer solution specified in EPA Method 218.6 must be used. This holding time allowance of 28-days supersedes the preservation and holding time requirements in the approved hexavalent chromium methods, unless this supersession would compromise the measurement, in which case the preservation and holding time requirements [the sample must be analyzed within 24 hours of collection] in the method must be followed
- [6] The limitation for TTO (Total Toxic Organics) applies to the summation of all quantifiable values greater than 0.01 mg/l for all toxic organics listed under 40 CFR 433.11(e) which are reasonably expected to be present. This is a federal effluent guideline-based limitation and is not an authorization to discharge toxic organic compounds at levels which cause or may cause water quality violations. The discharge of organic compounds at levels which cause or may cause water quality violations is prohibited. The intent of this limitation is to assure that any solvent or other products in use at the plant, which contain any of the listed toxic organic compounds, are disposed of properly, and not dumped, spilled, discharged or leaked.

Certification Statement

In lieu of monthly monitoring for TTO, the party responsible for signing the monthly discharge monitoring report (DMR) forms may make the following statement, as part of the DMR: "Based on my inquiry of the persons directly responsible for managing compliance with the permit limitations for TTO, I certify that, to the best of my knowledge and belief, no disposal of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the Toxic Organic Pollutant Management Plan submitted to the Compliance Data Section of the Office of Water Quality, as required by this permit." The Certification Statement may not be used until completion of the Toxic Organic Pollutant Management Plan required by Part I.H of this permit. However, the certification statement may be used as long as

there have been no changes at the facility that would significantly alter the current TOPMP, and the permittee is following the current TOPMP that was developed under the previous permit until the new plan is completed as required by Part I.H of this permit.

If the above-mentioned responsible party is unable to make the above Certification Statement because of discharge or spills of any TTO compounds, the Permittee is required to notify IDEM in accordance with Part II.C.3 of this permit.

- [7] For both total chromium and hexavalent chromium, the following apply:
- (a) In instances when there is insufficient sample volume (or no sample at all), the permittee shall document NODI code F (Insufficient flow for sampling) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.
 - (b) In instances where there is no flow during a 24-hour period, the permittee shall document NODI code C (No Discharge) on the Discharge Monitoring Reports and Monthly Monitoring Reports for the impacted outfall. Appropriate use of this code will be deemed an acceptable event and count towards the required daily sampling frequency.

6. The permittee shall comply with the limitations at Outfall 600 below in accordance with the terms and conditions of this permit. This is an outfall created to report cooling water intake data.

DISCHARGE LIMITATIONS [1]

Outfall 600

Parameter	Monthly Average	Daily Maximum	Units	Frequency
Velocity, Off-shore Intake	-----	Report	Feet/second	Daily
Velocity; Traveling Screens	-----	0.5	Feet/second	Daily
Intake Flow	-----	Report	MGD	Daily
Water Depth; Traveling Screens	-----	Report	Feet	Daily
Open Area, Traveling Screens	-----	Report	Square feet	Daily

- [1] The permittee must calculate the through-screen velocity at both the off-shore intake and at the inoperable traveling screens using water flow, water depth, and the screen/intake open areas. It is assumed that the open area of the offshore intake will remain 202.75 square feet for the life of this permit. The permittee is required to notify IDEM if it does change.

B. MINIMUM NARRATIVE LIMITATIONS

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

1. including waters within the mixing zone, to contain substances, materials, floating debris, oil, scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges that do any of the following:
 - a. will settle to form putrescent or otherwise objectionable deposits;
 - b. are in amounts sufficient to be unsightly or deleterious;
 - c. produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;
 - d. are in amounts sufficient to be acutely toxic to , or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;
 - e. are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
2. outside the mixing zone, to contain substances in concentrations that on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Monthly Reporting

The permittee shall submit federal and state discharge monitoring reports to the Indiana Department of Environmental Management (IDEM) containing results obtained during the previous month and shall be submitted no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the month in which the permit becomes effective.

These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Monitoring Report (MMR). All reports shall be submitted electronically by using the NetDMR application, upon registration, receipt of the NetDMR Subscriber Agreement, and IDEM approval of the proposed NetDMR Signatory. Access the NetDMR website (for initial registration and DMR/MMR submittal) via CDX at: <https://cdx.epa.gov/>. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit. See Part II.C.10 of this permit for Future Electronic Reporting Requirements.

- a. For parameters with monthly average water quality based effluent limitations (WQBELs) below the LOQ, daily effluent values that are less than the limit of quantitation (LOQ) may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.
- b. For all other parameters for which the monthly average WQBEL is equal to or greater than the LOQ, calculations that require averaging of measurements of daily values (both concentration and mass) shall use an arithmetic mean, except the monthly average for *E. coli* shall be calculated as a geometric mean. Daily effluent values that are less than the LOQ, that are used to determine the monthly average effluent level shall be accommodated in calculation of the average using statistical methods that have been approved by the Commissioner.
- c. Effluent concentrations less than the LOD shall be reported on the Discharge Monitoring Report (DMR) forms as < (less than) the value of the LOD. For example, if a substance is not detected at a concentration of 0.1 µg/l, report the value as <0.1 µg/l.
- d. Effluent concentrations greater than or equal to the LOD and less than the LOQ that are reported on a DMR shall be reported as the actual value and annotated on the DMR to indicate that the value is not quantifiable.
- e. Mass discharge values which are calculated from concentrations reported as less than the value of the limit of detection shall be reported as less than the corresponding mass discharge value.
- f. Mass discharge values that are calculated from effluent concentrations greater than the limit of detection shall be reported as the calculated value.

3. Definitions

- a. "Monthly Average" means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month.

The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

- b. "Daily Discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that reasonably represents the calendar day for the purposes of sampling.
- c. "Daily Maximum" means the maximum allowable daily discharge for any calendar day.
- d. A "24-hour composite sample" means a sample consisting of at least 3 individual flow-proportioned samples of wastewater, taken by the grab sample method or by an automatic sampler, which are taken at approximately equally spaced time intervals for the duration of the discharge within a 24-hour period and which are combined prior to analysis. A flow-proportioned composite sample may be obtained by:
- (1) recording the discharge flow rate at the time each individual sample is taken,
 - (2) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow" value,
 - (3) the discharge flow rate of each individual sampling time is divided by the total flow value to determine its percentage of the total flow value,
 - (4) then multiply the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.
- e. "Concentration" means the weight of any given material present in a unit volume of liquid. Unless otherwise indicated in this permit, concentration values shall be expressed in milligrams per liter (mg/l).

- f. The "Regional Administrator" is defined as the Region 5 Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.
- g. The "Commissioner" is defined as the Commissioner of the Indiana Department of Environmental Management, which is located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204.
- h. "Limit of Detection" or "LOD" means the minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix.
- i. "Limit of Quantitation" or "LOQ" means a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also sometimes called limit quantification or quantification level.
- j. "Method Detection Level" or "MDL" means the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by procedure set forth in 40 CFR 136, Appendix B. The method detection level or MDL is equivalent to the LOD.
- k. "Grab Sample" means a sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without considerations of time.

4. Test Procedures

The analytical and sampling methods used shall conform to the version of 40 CFR 136 incorporated by reference in 327 IAC 5. Different but equivalent methods are allowable if they receive the prior written approval of the Commissioner and the U.S. Environmental Protection Agency. When more than one test procedure is approved for the purposes of the NPDES program under 40 CFR 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 CFR 122.21(e)(3) and 122.44(i)(1)(iv).

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall maintain records of all monitoring information and monitoring activities, including:

- a. The date, exact place and time of sampling or measurement;
- b. The person(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The person(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such measurements and analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of this monitoring shall be included in the calculation and reporting of the values required in the monthly Discharge Monitoring Report (DMR) and Monthly Monitoring Report (MMR). Such increased frequency shall also be indicated. Other monitoring data not specifically required in this permit (such as internal process or internal waste stream data) which is collected by or for the permittee need not be submitted unless requested by the Commissioner.

7. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three years shall be extended:

- a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or
- b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

D. STORM WATER MONITORING AND NON-NUMERIC EFFLUENT LIMITS

Within twelve (12) months of the effective date of this permit, the permittee shall implement the non-numeric permit conditions in this Section of the permit for the entire site as it relates to storm water associated with industrial activity regardless which outfall the storm water is discharged from.

1. Control Measures and Effluent Limits

In the technology-based limits included in Part D.2-4., the term “minimize” means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practice.

2. Control Measures

Select, design, install, and implement control measures (including best management practices) to address the selection and design considerations in Part D.3 to meet the non-numeric effluent limits in Part D.4. The selection, design, installation, and implementation of these control measures must be in accordance with good engineering practices and manufacturer’s specifications. Any deviation from the manufacturer’s specifications shall be documented. If the control measures are not achieving their intended effect in minimizing pollutant discharges, the control measures must be modified as expeditiously as practicable. Regulated storm water discharges from the facility include storm water run-on that commingles with storm water discharges associated with industrial activity at the facility.

3. Control Measure Selection and Design Considerations

When selecting and designing control measures consider the following:

- a. preventing storm water from coming into contact with polluting materials is generally more effective, and cost-effective, than trying to remove pollutants from storm water;
- b. use of control measures in combination is more effective than use of control measures in isolation for minimizing pollutants in storm water discharge;
- c. assessing the type and quantity of pollutants, including their potential to impact receiving water quality, is critical to designing effective control measures that will achieve the limits in this permit;

- d. minimizing impervious areas at your facility and infiltrating runoff onsite (including bioretention cells, green roofs, and pervious pavement, among other approaches), can reduce runoff and improve groundwater recharge and stream base flows in local streams, although care must be taken to avoid ground water contamination;
- e. flow can be attenuated by use of open vegetated swales and natural depressions;
- f. conservation and/or restoration of riparian buffers will help protect streams from storm water runoff and improve water quality; and
- g. use of treatment interceptors (e.g. swirl separators and sand filters) may be appropriate in some instances to minimize the discharge of pollutants.

4. Technology-Based Effluent Limits (BPT/BAT/BCT)

Non-Numeric Effluent Limits:

a. Minimize Exposure

Minimize the exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. To the extent technologically available and economically practicable and achievable, either locate industrial materials and activities inside or protect them with storm resistant coverings in order to minimize exposure to rain, snow, snowmelt, and runoff (although significant enlargement of impervious surface area is not recommended). In minimizing exposure, pay particular attention to the following areas:

Loading and unloading areas: locate in roofed or covered areas where feasible; use grading, berming, or curbing around the loading area to divert run-on; locate the loading and unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems.

Material storage areas: locate indoors, or in roofed or covered areas where feasible; install berms/dikes around these areas; use dry cleanup methods.

Note: Industrial materials do not need to be enclosed or covered if storm water runoff from affected areas will not be discharged to receiving waters.

b. Good Housekeeping

Keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals, keeping materials orderly and labeled, and stowing materials in appropriate containers.

As part of the developed good housekeeping program, include a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading and unloading, storage, handling, and processing occur; and where practicable, the paving of areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable (institute a sweeping program in these areas too). For unstabilized areas where sweeping is not practicable, consider using storm water management devices such as sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection, or other equivalent measures that effectively trap or remove sediment.

c. Maintenance

Maintain all control measures which are used to achieve the effluent limits required by this permit in effective operating condition. Nonstructural control measures must also be diligently maintained (e.g., spill response supplies available, personnel appropriately trained). If control measures need to be replaced or repaired, make the necessary repairs or modifications as expeditiously as practicable.

d. Spill Prevention and Response Procedures

You must minimize the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills if or when they occur. At a minimum, you must implement:

- (1) Procedures for plainly labeling containers (e.g., "Used Oil", "Spent Solvents", "Fertilizers and Pesticides", etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
- (2) Preventive measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling;

- (3) Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of your storm water pollution prevention team;
- (4) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies. State or local requirements may necessitate reporting spills or discharges to local emergency response, public health, or drinking water supply agencies. Contact information must be in locations that are readily accessible and available;
- (5) Procedures for documenting where potential spills and leaks could occur that could contribute pollutants to storm water discharges, and the corresponding outfalls that would be affected by such spills and leaks; and
- (6) A procedure for documenting all significant spills and leaks of oil or toxic or hazardous pollutants that actually occurred at exposed areas, or that drained to a storm water conveyance.

e. Erosion and Sediment Controls

Through the use of structural and/or non-structural control measures stabilize, and contain runoff from, exposed areas to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Among other actions to meet this limit, place flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion and/or settle out pollutants. In selecting, designing, installing, and implementing appropriate control measures, you are encouraged to check out information from both the State and EPA websites. The following two websites are given as information sources:

<http://www.in.gov/idem/stormwater/2363.htm>

and

<https://www.epa.gov/npdes/stormwater-discharges-industrial-activities>

f. Management of Runoff

Divert, infiltrate, reuse, contain or otherwise reduce storm water runoff, to minimize pollutants in the discharge.

g. Salt Storage Piles or Piles Containing Salt

Enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. You must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if storm water runoff from the piles is not discharged.

h. Waste, Garbage, and Floatable Debris

Ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.

i. Employee Training

Train all employees who work in areas where industrial material or activities are exposed to storm water, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team. Training must cover the specific control measures used to achieve the effluent limits in this part, and monitoring, inspection, planning, reporting, and documentation requirements in other parts of this permit.

j. Non-Storm water Discharges

You must determine if any non-storm water discharges not authorized by an NPDES permit exist. Any non-storm water discharges discovered must either be eliminated or modified into this permit. The following non-storm water discharges are authorized and must be documented in the Storm Water Pollution Prevention Plan:

Discharges from fire-fighting activities;
Fire Hydrant flushings;
Potable water, including water line flushings;
Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
Irrigation drainage;
Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;

Pavement wash water where no detergents are used and no spills or leaks of toxic or hazardous material have occurred (unless all spilled material has been removed);
Routine external building washdown that does not use detergents;
Uncontaminated ground water or spring water;
Foundation or footing drains where flows are not contaminated with process materials;
Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from cooling towers (e.g., "piped cooling tower blowdown or drains);
Vehicle wash- waters where uncontaminated water without detergents or solvents is utilized; and
Runoff from the use of dust suppressants approved for use by IDEM.

k. Dust Generation and Vehicle Tracking of Industrial Materials

You must minimize generation of dust and off-site tracking of raw, final, or waste materials.

5. Annual Review

At least once every twelve (12) months, you must review the selection, design, installation, and implementation of your control measures to determine if modifications are necessary to meet the effluent limitations in this permit. You must document the results of your review in a report that shall be retained within the SWPPP. You must also submit the report to the Industrial NPDES Permit Section, as well as the Compliance Branch, on an annual basis. The report may be submitted by email to the Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and to the Compliance Branch at wwReports@idem.in.gov. The email subject line should include the NPDES Permit # and the type of report being submitted (Annual Storm Water Report). The permittee's first annual review report will be due twelve (12) months from the effective date of the permit. All subsequent annual review reports will be due no later than the anniversary of the effective date of the permit.

6. Corrective Actions – Conditions Requiring Review

- a. If any of the following conditions occur, you must review and revise the selection, design, installation, and implementation of your control measures to ensure that the condition is eliminated and will not be repeated:

- (1) an unauthorized release or discharge (e.g., spill, leak, or discharge of non-storm water not authorized by this NPDES permit) occurs at this facility;
 - (2) it is determined that your control measures are not stringent enough for the discharge to meet applicable water quality standards;
 - (3) it is determined in your routine facility inspection, an inspection by EPA or IDEM, comprehensive site evaluation, or the Annual Review required in Part D.5 that modifications to the control measures are necessary to meet the effluent limits in this permit or that your control measures are not being properly operated and maintained; or
 - (4) Upon written notice by the Commissioner that the control measures prove to be ineffective in controlling pollutants in storm water discharges exposed to industrial activity.
- b. If construction or a change in design, operation, or maintenance at your facility significantly changes the nature of pollutants discharged in storm water from your facility, or significantly increases the quantity of pollutants discharged, you must review and revise the selection, design, installation, and implementation of your control measures to determine if modifications are necessary to meet the effluent limits in this permit:

7. Corrective Action Deadlines

You must document your discovery of any of the conditions listed in Part I.D.6 within thirty (30) days of making such discovery. Subsequently, within one-hundred and twenty (120) days of such discovery, you must document any corrective action(s) to be taken to eliminate or further investigate the deficiency or if no corrective action is needed, the basis for that determination. Specific documentation required within 30 and 120 days is detailed below. If you determine that changes to your control measures are necessary following your review, any modifications to your control measures must be made before the next storm event if possible, or as soon as practicable following that storm event. These time intervals are not grace periods, but schedules considered reasonable for the documenting of your findings and for making repairs and improvements. They are included in this permit to ensure that the conditions prompting the need for these repairs and improvements are not allowed to persist indefinitely.

8. Corrective Action Report

- a. Within 30 days of a discovery of any condition listed in Part I.D.6, you must document the following information:
 - (1) Brief description of the condition triggering corrective action;
 - (2) Date condition identified; and
 - (3) How deficiency identified.
- b. Within 120 days of discovery of any condition listed in Part I.D.6, you must document the following information:
 - (1) Summary of corrective action taken or to be taken (or, for triggering events identified in Part I.D.6.b.(1), where you determine that corrective action is not necessary, the basis for this determination)
 - (2) Notice of whether SWPPP modifications are required as a result of this discovery or corrective action;
 - (3) Date corrective action initiated; and
 - (4) Date corrective action completed or expected to be completed.

9. Inspections

The inspections in this part must be conducted at this facility when the facility is operating. Any corrective action required as a result of an inspection or evaluation conducted under Part I.D.9. must be performed consistent with Part I.D.6 of this permit.

a. Quarterly Inspections

At a minimum, quarterly inspections of the storm water management measures and storm water run-off conveyances. The routine inspections must be performed by qualified personnel with at least one member of your storm water pollution prevention team. Inspections must be documented and either contained in, or have the on-site record keeping location referenced in, the SWPPP.

As part of the routine inspections, address all potential sources of pollutants, including (if applicable) air pollution control equipment (e.g., baghouses, electrostatic precipitator, scrubbers, and cyclones), for any signs of degradation (e.g., leaks, corrosion, or improper operation) that could limit their efficiency and lead to excessive emissions.

Considering monitoring air flow at inlets and outlets (or use equivalent measures) to check for leaks (e.g., particulate deposition) or blockage in ducts. Also inspect all process and material handling equipment (e.g., conveyors, cranes, and vehicles) for leaks, drips, or the potential loss of material; and material storage areas (e.g., piles, bins, or hoppers for storing coke, coal, scrap, or slag, as well as chemicals stored in tanks and drums) for signs of material loss due to wind or storm water runoff.

Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with Part I.E.2.b of this permit and pollution prevention measures and controls identified in the plan in accordance with Part I.D.4. of this permit shall be revised as appropriate within the timeframes contained in Part I.D.7 of this permit.

b. Annual Routine Facility Inspection

At least once during the calendar year, a routine facility inspection must be conducted while a discharge is occurring. You must document the findings of each routine facility inspection performed and maintain this documentation with your SWPPP or have the on-site record keeping location referenced in the SWPPP. At a minimum, your documentation must include:

- (1) The inspection date and time;
- (2) The name(s) and signature(s) of the inspectors;
- (3) Weather information and a description of any discharges occurring at the time of the inspection;
- (4) Any previously unidentified discharges of pollutants from the site;
- (5) Any control measures needing maintenance or repairs;
- (6) Any failed control measures that need replacement;
- (7) Any incidents of noncompliance observed; and

- (8) Any additional control measures needed to comply with the permit requirements.

c. Annual Comprehensive Site Compliance Evaluation

Qualified personnel and at least one member of your Pollution Prevention Team shall conduct a comprehensive site compliance evaluation, at least once per year, to confirm the accuracy of the description of potential pollution sources contained in the plan, determine the effectiveness of the plan, and assess compliance with the permit. Such evaluations shall provide:

- (1) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
- (2) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with the above paragraph must be documented and either contained in, or have on-site record keeping location referenced in, the SWPPP at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with the signatory requirements of Part II.C.6 of this permit.
- (3) Where compliance evaluation schedules overlap the inspections required under this part, the compliance evaluation may be conducted in place of one such inspection.

E. STORM WATER POLLUTION PREVENTION PLAN

1. Development of Plan

Within 12 months from the effective date of this permit, the permittee is required to revise and update the current Storm Water Pollution Prevention Plan (SWPPP) for the permitted facility. The plan shall at a minimum include the following:

- a. Identify potential sources of pollution, which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. Storm water associated with industrial activity (defined in 40 CFR 122.26(b)(14)) includes, but is not limited to, the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or materials storage areas at an industrial plant;
- b. Describe practices and measure to be used in reducing the potential for pollutants to be exposed to storm water; and
- c. Assure compliance with the terms and conditions of this permit.

2. Contents

The plan shall include, at a minimum, the following items:

- a. Pollution Prevention Team -The plan shall list, by position title, the member or members of the facility organization as members of a Storm Water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan (SWPPP) and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each storm water pollution prevention team member. Each member of the storm water pollution prevention team must have ready access to either an electronic or paper copy of applicable portions of this permit and your SWPPP.
- b. Description of Potential Pollutant Sources – The plan shall provide a description of areas at the site exposed to industrial activity and have a reasonable potential for storm water to be exposed to pollutants. The plan shall identify all activities and significant materials (defined in 40 CFR 122.26(b)), which may potentially be significant pollutant sources. As a minimum, the plan shall contain the following:
 - (1) A soils map indicating the types of soils found on the facility property and showing the boundaries of the facility property.

- (2) A graphical representation, such as an aerial photograph or site layout maps, drawn to an appropriate scale, which contains a legend and compass coordinates, indicating, at a minimum, the following:
- (A) All on-site storm water drainage and discharge conveyances, which may include pipes, ditches, swales, and erosion channels, related to a storm water discharge.
 - (B) Known adjacent property drainage and discharge conveyances, if directly associated with run-off from the facility.
 - (C) All on-site and known adjacent property water bodies, including wetlands and springs.
 - (D) An outline of the drainage area for each outfall.
 - (E) An outline of the facility property, indicating directional flows, via arrows, of surface drainage patterns.
 - (F) An outline of impervious surfaces, which includes pavement and buildings, and an estimate of the impervious and pervious surface square footage for each drainage area placed in a map legend.
 - (G) On-site injection wells, as applicable.
 - (H) On-site wells used as potable water sources, as applicable.
 - (I) All existing major structural control measures to reduce pollutants in storm water run-off.
 - (J) All existing and historical underground or aboveground storage tank locations, as applicable.
 - (K) All permanently designated plowed or dumped snow storage locations.
 - (L) All loading and unloading areas for solid and liquid bulk materials.

- (M) All existing and historical outdoor storage areas for raw materials, intermediary products, final products, and waste materials. Include materials handled at the site that potentially may be exposed to precipitation or runoff, areas where deposition of particulate matter from process air emissions or losses during material-handling activities.
 - (N) All existing or historical outdoor storage areas for fuels, processing equipment, and other containerized materials, for example, in drums and totes.
 - (O) Outdoor processing areas.
 - (P) Dust or particulate generating process areas.
 - (Q) Outdoor assigned waste storage or disposal areas.
 - (R) Pesticide or herbicide application areas.
 - (S) Vehicular access roads.
 - (T) Identify any storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; liquid storage tanks and drums; processing areas including pollution control equipment (e.g., baghouses); and storage areas of raw material such as coal, coke, scrap, sand, fluxes, refractories, or metal in any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal and coke handling operation, etc., and could result in a discharge of pollutants.
 - (U) The mapping of historical locations is only required if the historical locations have a reasonable potential for storm water exposure to historical pollutants.
- (3) An area site map that indicates:
- (A) The topographic relief or similar elevations to determine surface drainage patterns;
 - (B) The facility boundaries;
 - (C) All receiving waters;

(D) All known drinking water wells; and

Includes at a minimum, the features in clauses (A), (C), and (D) within a one-fourth (1/4) mile radius beyond the property boundaries of the facility. This map must be to scale and include a legend and compass coordinates.

(4) A narrative description of areas that generate storm water discharges exposed to industrial activity including descriptions for any existing or historical areas listed in subdivision 2.b.(2)(J) through (T) of this Part, and any other areas thought to generate storm water discharges exposed to industrial activity. The narrative descriptions for each identified area must include the following:

(A) Type and typical quantity of materials present in the area.

(B) Methods of storage, including presence of any secondary containment measures.

(C) Any remedial actions undertaken in the area to eliminate pollutant sources or exposure of storm water to those sources. If a corrective action plan was developed, the type of remedial action and plan date shall be referenced.

(D) Any significant release or spill history dating back a period of three (3) years from the effective date of this permit, in the identified area, for materials spilled outside of secondary containment structures and impervious surfaces in excess of their reportable quantity, including the following:

- i. The date and type of material released or spilled.
- ii. The estimated volume released or spilled.
- iii. A description of the remedial actions undertaken, including disposal or treatment.

Depending on the adequacy or completeness of the remedial actions, the spill history shall be used to determine additional pollutant sources that may be exposed to storm water. In subsequent permit terms, the history shall date back for a period of five (5) years from the date of the permit renewal application.

- (E) Where the chemicals or materials have the potential to be exposed to storm water discharges, the descriptions for each identified area must include a risk identification analysis of chemicals or materials stored or used within the area. The analysis must include the following:
 - i. Toxicity data of chemicals or materials used within the area, referencing appropriate material safety data sheet information locations.
 - ii. The frequency and typical quantity of listed chemicals or materials to be stored within the area.
 - iii. Potential ways in which storm water discharges may be exposed to listed chemicals and materials.
 - iv. The likelihood of the listed chemicals and materials to come into contact with water.
- (5) A narrative description of existing and planned management practices and measures to improve the quality of storm water run-off entering a water of the state. Descriptions must be created for existing or historical areas listed in subdivision 2.b.(2)(J) through (T) and any other areas thought to generate storm water discharges exposed to industrial activity. The description must include the following:
 - (A) Any existing or planned structural and nonstructural control practices and measures.
 - (B) Any treatment the storm water receives prior to leaving the facility property or entering a water of the state.
 - (C) The ultimate disposal of any solid or fluid wastes collected in structural control measures other than by discharge.
 - (D) Describe areas that due to topography, activities, or other factors have a high potential for significant soil erosion.
 - (E) Document the location of any storage piles containing salt used for deicing.
 - (F) Information or other documentation required under Part I.E.2(d) of this permit.

- (6) The results of storm water monitoring. The monitoring data must include completed field data sheets, chain-of-custody forms, and laboratory results. If the monitoring data are not placed into the facility's SWPPP, the on-site location for storage of the information must be reference in the SWPPP.
- c. Non-Storm water Discharges – You must document that you have evaluated for the presence of non-storm water discharges not authorized by an NPDES permit. Any non-storm water discharges have either been eliminated or incorporated into this permit. Documentation of non-storm water discharges shall include:
 - (1) A written non-storm water assessment, including the following:
 - (A) A certification letter stating that storm water discharges entering a water of the state have been evaluated for the presence of illicit discharges and non-storm water contributions.
 - (B) Detergent or solvent-based washing of equipment or vehicles that would allow washwater additives to enter any storm water only drainage system shall not be allowed at this facility unless appropriately permitted under this NPDES permit.
 - (C) All interior maintenance area floor drains with the potential for maintenance fluids or other materials to enter storm water only storm sewers must be either sealed, connected to a sanitary sewer with prior authorization, or appropriately permitted under this NPDES permit. The sealing, sanitary sewer connecting, or permitting of drains under this item must be documented in the written non-storm water assessment program.
 - (D) The certification shall include a description of the method used, the date of any testing, and the on-site drainage points that were directly observed during the test.

- d. General Requirements – The SWPPP must meet the following general requirements:
- (1) The plan shall be certified by a qualified professional. The term qualified professional means an individual who is trained and experienced in water treatment techniques and related fields as may be demonstrated by state registration, professional certification, or completion of course work that enable the individual to make sound, professional judgments regarding storm water control/treatment and monitoring, pollutant fate and transport, and drainage planning.
 - (2) The plan shall be retained at the facility and be available for review by a representative of the Commissioner upon request. IDEM may provide access to portions of your SWPPP to the public.
 - (3) The plan must be revised and updated as required. Revised and updated versions of the plan must be implemented on or before three hundred sixty-five (365) days from the effective date of this permit. The Commissioner may grant an extension of this time frame based on a request by the person showing reasonable cause.
 - (4) If the permittee has other written plans, required under applicable federal or state law, such as operation and maintenance, spill prevention control and countermeasures (SPCC), or risk contingency plans, which fulfill certain requirements of an SWPPP, these plans may be referenced, at the permittee's discretion, in the appropriate sections of the SWPPP to meet those section requirements.
 - (5) The permittee may combine the requirements of the SWPPP with another written plan if:
 - (A) The plan is retained at the facility and available for review;
 - (B) All the requirements of the SWPPP are contained within the plan; and
 - (C) A separate, labeled section is utilized in the plan for the SWPPP requirements.

F. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

To adequately assess the effects of the effluent on aquatic life, the permittee is required by this section of the permit to conduct chronic whole effluent toxicity (WET) testing. Part I.F.1. of this permit describes the testing procedures and Part I.F.2. describes the toxicity reduction evaluation (TRE) which is only required if the effluent demonstrates toxicity in two (2) consecutive toxicity tests as described in Part I.F.1.f.

1. Whole Effluent Toxicity (WET) Tests

The permittee must conduct the series of aquatic toxicity tests specified in Part I.F.1.d. to monitor the acute and chronic toxicity of the effluent discharged from Outfall 004.

If toxicity is demonstrated in two (2) consecutive toxicity tests, as described in Part I.F.1.f., with any test species during the term of the permit, the permittee is required to conduct a TRE under Part I.F.2.

a. Toxicity Test Procedures and Data Analysis

- (1) All test organisms, test procedures and quality assurance criteria used must be in accordance with the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition, Section 11, Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test Method 1000.0, and Section 13, Daphnid (*Ceriodaphnia dubia*) Survival and Reproduction Test Method 1002.0, EPA 821-R-02-013, October 2002 (hereinafter "Chronic Toxicity Test Method"), or most recent update that conforms to the version of 40 CFR 136 incorporated by reference in 327 IAC 5. References to specific portions of the Chronic Toxicity Test Method contained in this Part I.F. are provided for informational purposes. If the Chronic Toxicity Test Method is updated, the corresponding provisions of that updated method would be applicable.
- (2) Any circumstances not covered by the above methods, or that require deviation from the specified methods must first be approved by the IDEM Permits Branch.

Due to pathogen interference in the WET testing program at U.S. Steel – Midwest Plant, IDEM has approved the use of the alternative test method of sampling filtration to demonstrate compliance for fathead minnow testing. This method has been approved by U.S. EPA and, based on prior determination by IDEM, is appropriate for use at U.S. Steel – Midwest Plant.

- (3) The determination of acute and chronic endpoints of toxicity (LC₅₀, NOEC and IC₂₅ values) must be made in accordance with the procedures in Section 9, "Chronic Toxicity Test Endpoints and Data Analysis" and the Data Analysis procedures as outlined in Section 11 for fathead minnow (Test Method 1000.0; see flowcharts in Figures 5, 6 and 9) and Section 13 for *Ceriodaphnia dubia* (Test Method 1002.0; see flowcharts in Figures 4 and 6) of the Chronic Toxicity Test Method. The IC₂₅ value together with 95% confidence intervals calculated by the Linear Interpolation and Bootstrap Methods in Appendix M of the Chronic Toxicity Test Method must be determined in addition to the NOEC value.

b. Types of Whole Effluent Toxicity Tests

- (1) Tests may include a 3-brood (7-day) definitive static-renewal daphnid (*Ceriodaphnia dubia*) survival and reproduction toxicity test and a 7-day definitive static-renewal fathead minnow (*Pimephales promelas*) larval survival and growth toxicity test.
- (2) All tests must be conducted using 24-hour composite samples of final effluent. Three effluent samples are to be collected on alternate days (e.g., collected on days one, three and five). The first effluent sample will be used for test initiation and for test solution renewal on day 2. The second effluent sample will be used for test solution renewal on days 3 and 4. The third effluent sample will be used for test solution renewal on days 5, 6 and 7. If shipping problems are encountered with renewal samples after a test has been initiated, the most recently used sample may continue to be used for test renewal, if first approved by the IDEM Permits Branch, but for no longer than 72 hours after first use.
- (3) The whole effluent dilution series for the definitive test must include a control and at least five effluent concentrations with a minimum dilution factor of 0.5. The effluent concentrations selected must include and, if practicable, bracket the effluent concentrations associated with the determinations of acute and chronic toxicity provided in Part I.F.1.f. Guidance on selecting effluent test concentrations is included in Section 8.10 of the Chronic Toxicity Test Method. The use of an alternate procedure for selecting test concentrations must first be approved by the IDEM Permits Branch.

- (4) If, in any control, more than 10% of the test organisms die in the first 48 hours with a daphnid species or the first 96 hours with fathead minnow, or more than 20% of the test organisms die in 7 days, that test is considered invalid and the toxicity test must be repeated. In addition, if in the *Ceriodaphnia dubia* survival and reproduction test, the average number of young produced per surviving female in the control group is less than 15, or if 60% of surviving control females have less than three broods; and in the fathead minnow (*Pimephales promelas*) survival and growth test, if the mean dry weight of surviving fish in the control group is less than 0.25 mg, that test is considered invalid and must also be repeated. All other test conditions and test acceptability criteria for the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* chronic toxicity tests must be in accordance with the test requirements in Section 11 (Test Method 1000.0), Table 1 and Section 13 (Test Method 1002.0), Table 3, respectively, of the Chronic Toxicity Test Method.

c. Effluent Sample Collection and Chemical Analysis

- (1) Whole effluent samples taken for the purposes of toxicity testing must be 24-hour composite samples collected at a point that is representative of the final effluent, but prior to discharge. Effluent sampling for the toxicity testing may be coordinated with other permit sampling requirements as appropriate to avoid duplication. First use of the whole effluent toxicity testing samples must not exceed 36 hours after termination of the 24-hour composite sample collection and must not be used for longer than 72 hours after first use. For discharges of less than 24 hours in duration, composite samples must be collected for the duration of the discharge within a 24-hour period (see "24-hour composite sample" definition in Part I.C.3. of this permit).
- (2) Chemical analysis must accompany each effluent sample taken for toxicity testing, including each sample taken for the repeat testing as outlined in Part I.F.1.f.(3). The chemical analysis detailed in Part I.A.3 must be conducted for the effluent sample in accordance with Part I.C.4. of this permit.

d. Toxicity Testing Species, Frequency and Duration

Under the previous permit, this facility initiated a TRE and the Compliance Data Section suspended toxicity testing requirements for the term of the TRE compliance schedule. The facility is required under this permit to complete the TRE following the current compliance schedule which ends September 1, 2023.

Successful completion of the TRE will be demonstrated by the toxicity tests required under Part I.F.2.c. After successful completion of the TRE, the toxicity tests established under Part I.F.2.c.(4) must be conducted once quarterly, as calculated from the first day of the first month following successful completion of the post-TRE toxicity tests (see Part I.F.2.c.(4)), for the remainder of the permit term.

If a subsequent TRE is initiated during the term of the permit, after receiving notification under Part I.F.1.e, the Compliance Data Section will suspend the toxicity testing requirements above for the term of the TRE compliance schedule described in Part I.F.2. After successful completion of the TRE, the toxicity tests established under Part I.F.2.c.(4) must be conducted once quarterly, as calculated from the first day of the first month following successful completion of the post-TRE toxicity tests (see Part I.F.2.c.(4)), for the remainder of the permit term.

e. Reporting

- (1) Notifications of the failure of two (2) consecutive toxicity tests and the intent to begin the implementation of a toxicity reduction evaluation (TRE) under Part I.F.1.f.(4) must be submitted in writing to the Compliance Data Section of IDEM's Office of Water Quality.
- (2) Results of all toxicity tests, including invalid tests, must be reported to IDEM according to the general format and content recommended in the Chronic Toxicity Test Method, Section 10, "Report Preparation and Test Review". However, only the results of valid toxicity tests are to be reported on the discharge monitoring report (DMR). The results of the toxicity tests and laboratory report are due by the earlier of 60 days after completion of the test or the 28th day of the month following the end of the period established in Part I.F.1.d.
- (3) The full whole effluent toxicity (WET) test laboratory report must be submitted to IDEM electronically as an attachment to an e-mail to the Compliance Data Section at wwreports@idem.IN.gov. The results must also be submitted via NetDMR.

- (4) For quality control and ongoing laboratory performance, the laboratory report must include results from appropriate standard reference toxicant tests. This will consist of acute (LC_{50} values), if available, and chronic (NOEC, LOEC and IC_{25} values) endpoints of toxicity obtained from reference toxicant tests conducted within 30 days of the most current effluent toxicity tests and from similarly obtained historical reference toxicant data with mean values and appropriate ranges for each species tested for at least three months to one year. Toxicity test laboratory reports must also include copies of chain-of-custody records and laboratory raw data sheets.
- (5) Statistical procedures used to analyze and interpret toxicity data (e.g., Fisher's Exact Test and Steel's Many-one Rank Test for 7-day survival of test organisms; tests of normality (e.g., Shapiro-Wilk's Test) and homogeneity of variance (e.g., Bartlett's Test); appropriate parametric (e.g., Dunnett's Test) and non-parametric (e.g., Steel's Many-one Rank Test) significance tests and point estimates (IC_{25}) of effluent toxicity, etc.; together with graphical presentation of survival, growth and reproduction of test organisms), including critical values, levels of significance and 95% confidence intervals, must be described and included as part of the toxicity test laboratory report.
- (6) For valid toxicity tests, the whole effluent toxicity (WET) test laboratory report must include a summary table of the results for each species tested as shown in the table presented below. This table will provide toxicity test results, reported in acute toxic units (TU_a) and chronic toxic units (TU_c), for evaluation under Part I.F.1.f. and reporting on the discharge monitoring report (DMR).

Test Organism [1]	Test Type	Endpoint [2]	Units	Result	Compliance Limit	Pass/Fail [6]	Reporting
<i>Ceriodaphnia dubia</i>	3-brood (7-day) Definitive Static-Renewal Survival and Reproduction	48-hr. LC ₅₀	%	Report			Laboratory Report
			TU _a	Report			
		NOEC Survival	%	Report			
			TU _c	Report			
		NOEC Reproduction	%	Report			
			TU _c	Report			
		IC ₂₅ Reproduction	%	Report			
			TU _c	Report			
		Toxicity (acute) [3]	TU _a	Report [5]	1.0	Report	Laboratory Report and NetDMR (Parameter Code 61425)
		Toxicity (chronic) [4]	TU _c	Report [5]	2.0	Report	Laboratory Report and NetDMR (Parameter Code 61426)
<i>Pimephales promelas</i>	7-day Definitive Static-Renewal Larval Survival and Growth	96-hr. LC ₅₀	%	Report			Laboratory Report
			TU _a	Report			
		NOEC Survival	%	Report			
			TU _c	Report			
		NOEC Growth	%	Report			
			TU _c	Report			
		IC ₂₅ Growth	%	Report			
			TU _c	Report			
		Toxicity (acute) [3]	TU _a	Report [5]	1.0	Report	Laboratory Report and NetDMR (Parameter Code 61427)
		Toxicity (chronic) [4]	TU _c	Report [5]	2.0	Report	Laboratory Report and NetDMR (Parameter Code 61428)

[1] For the whole effluent toxicity (WET) test laboratory report, eliminate from the table any species that was not tested.

[2] A separate acute test is not required. The endpoint of acute toxicity must be extrapolated from the chronic toxicity test.

[3] The toxicity (acute) endpoint for *Ceriodaphnia dubia* is the 48-hr. LC₅₀ result reported in acute toxic units (TU_a). The toxicity (acute) endpoint for *Pimephales promelas* is the 96-hr. LC₅₀ result reported in acute toxic units (TU_a).

[4] The toxicity (chronic) endpoint for *Ceriodaphnia dubia* is the higher of the NOEC Survival, NOEC Reproduction and IC₂₅ Reproduction values reported in chronic toxic units (TU_c). The toxicity (chronic) endpoint for *Pimephales promelas* is the higher of the NOEC Survival, NOEC Growth and IC₂₅ Growth values reported in chronic toxic units (TU_c).

[5] Report the values for acute and chronic endpoints of toxicity determined in [3] and [4] for the corresponding species. These values are the ones that need to be reported on the discharge monitoring report (DMR).

[6] If the toxicity result (in TUs) is less than or equal to the compliance limit, report "Pass". If the toxicity result (in TUs) exceeds the compliance limit, report "Fail".

f. Demonstration of Toxicity

- (1) Toxicity (acute) will be demonstrated if the effluent is observed to have exceeded 1.0 TU_a (acute toxic units) for *Ceriodaphnia dubia* in 48 hours or in 96 hours for *Pimephales promelas*. For this purpose, a separate acute toxicity test is not required. The results for the acute toxicity demonstration must be extrapolated from the chronic toxicity test. For the purpose of selecting test concentrations under Part I.F.1.b.(3), the effluent concentration associated with acute toxicity is 100%.
- (2) Toxicity (chronic) will be demonstrated if the effluent is observed to have exceeded 2.0 TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas* from the chronic toxicity test. For the purpose of selecting test concentrations under Part I.F.1.b.(3), the effluent concentration associated with chronic toxicity is 50%.
- (3) If toxicity (acute) or toxicity (chronic) is demonstrated in any of the chronic toxicity tests specified above, a repeat chronic toxicity test using the procedures in Part I.F.1. of this permit and the same test species must be initiated within two (2) weeks of test failure. During the sampling for any repeat tests, the permittee must also collect and preserve sufficient effluent samples for use in any toxicity identification evaluation (TIE) and/or toxicity reduction evaluation (TRE), if necessary.
- (4) If any two (2) consecutive chronic toxicity tests, including any and all repeat tests, demonstrate acute or chronic toxicity, the permittee must notify the Compliance Data Section under Part I.F.1.e. within 30 days of the date of termination of the second test, and begin the implementation of a toxicity reduction evaluation (TRE) as described in Part I.F.2. After receiving notification from the permittee, the Compliance Data Section will suspend the whole effluent toxicity testing requirements in Part I.F.1. for the term of the TRE compliance schedule.

g. Definitions

- (1) "Acute toxic unit" or "TU_a" is defined as $100/LC_{50}$ where the LC_{50} is expressed as a percent effluent in the test medium of an acute whole effluent toxicity (WET) test that is statistically or graphically estimated to be lethal to fifty percent (50%) of the test organisms.
- (2) "Chronic toxic unit" or "TU_c" is defined as $100/NOEC$ or $100/IC_{25}$, where the $NOEC$ or IC_{25} are expressed as a percent effluent in the test medium.
- (3) "Inhibition concentration 25" or "IC₂₅" means the toxicant (effluent) concentration that would cause a twenty-five percent (25%) reduction in a nonquantal biological measurement for the test population. For example, the IC_{25} is the concentration of toxicant (effluent) that would cause a twenty-five percent (25%) reduction in mean young per female or in growth for the test population.
- (4) "No observed effect concentration" or "NOEC" is the highest concentration of toxicant (effluent) to which organisms are exposed in a full life cycle or partial life cycle (short term) test, that causes no observable adverse effects on the test organisms, that is, the highest concentration of toxicant (effluent) in which the values for the observed responses are not statistically significantly different from the controls.

2. Toxicity Reduction Evaluation (TRE) Schedule of Compliance

The development and implementation of a TRE is only required if toxicity is demonstrated in two (2) consecutive tests as described in Part I.F.1.f.(4). The post-TRE toxicity testing requirements in Part I.F.2.c. must also be completed as part of the TRE compliance schedule.

Milestone Dates: See a. through e. below for more detail on the TRE milestone dates.

Requirement	Deadline
Development and Submittal of a TRE Plan	Within 90 days of the date of two (2) consecutive failed toxicity tests.
Initiate a TRE Study	Within 30 days of TRE Plan submittal.
Submit TRE Progress Reports	Every 90 days beginning six (6) months from the date of two (2) consecutive failed toxicity tests.
Post-TRE Toxicity Testing Requirements	Immediately upon completion of the TRE, conduct three (3) consecutive months of toxicity tests with both test species; if no acute or chronic toxicity is shown with any test species, reduce toxicity tests to once quarterly for the remainder of the permit term. If post-TRE toxicity testing demonstrates toxicity, continue the TRE study.
Submit Final TRE Report	Within 90 days of successfully completing the TRE (including the post-TRE toxicity testing requirements), not to exceed three (3) years from the date that toxicity is initially demonstrated in two (2) consecutive toxicity tests.

a. Development of TRE Plan

Within 90 days of the date of two (2) consecutive failed toxicity tests (i.e. the date of termination of the second test), the permittee must submit plans for an effluent TRE to the Compliance Data Section. The TRE plan must include appropriate measures to characterize the causative toxicants and reduce toxicity in the effluent discharge to levels that demonstrate no toxicity with any test species as described in Part I.F.1.f. Guidance on conducting effluent toxicity reduction evaluations is available from EPA and from the EPA publications listed below:

(1) Methods for Aquatic Toxicity Identification Evaluations:

Phase I Toxicity Characterization Procedures, Second Edition (EPA/600/6-91/003), February 1991.

Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/080), September 1993.

Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/081), September 1993.

(2) Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I (EPA/600/6-91/005F), May 1992.

- (3) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs) (EPA/600/2-88/070), April 1989.
- (4) Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program, U.S. EPA, March 27, 2001.

b. Conduct the TRE

Within 30 days after submittal of the TRE plan to the Compliance Data Section, the permittee must initiate the TRE consistent with the TRE plan.

c. Post-TRE Toxicity Testing Requirements

- (1) After completing the TRE, the permittee must conduct monthly post-TRE toxicity tests with the two (2) test species *Ceriodaphnia dubia* and fathead minnow (*Pimephales promelas*) for a period of three (3) consecutive months.
- (2) If the three (3) monthly tests demonstrate no toxicity with any test species as described in Part I.F.1.f., the TRE will be considered successful. Otherwise, the TRE study must be continued.
- (3) The post-TRE toxicity tests must be conducted in accordance with the procedures in Part I.F.1. The results of these tests must be submitted as part of the final TRE Report required under Part I.F.2.d.
- (4) After successful completion of the TRE, the permittee must resume the chronic toxicity tests required in Part I.F.1. The permittee may reduce the number of species tested to only include the species demonstrated to be most sensitive to the toxicity in the effluent. The established starting date for the frequency in Part I.F.1.d. is the first day of the first month following successful completion of the post-TRE toxicity tests.

d. Reporting

- (1) Progress reports must be submitted every 90 days to the Compliance Data Section beginning six (6) months from the date of two (2) consecutive failed toxicity tests. Each TRE progress report must include a listing of proposed activities for the next quarter and a schedule to reduce toxicity in the effluent discharge to acceptable levels through control of the toxicant source or treatment of whole effluent.

- (2) Within 90 days of successfully completing the TRE, including the three (3) consecutive monthly tests required as part of the post-TRE toxicity testing requirements in Part I.F.2.c., the permittee must submit to the Compliance Data Section a final TRE Report that includes the following:
 - (A) A discussion of the TRE results;
 - (B) The starting date established under Part I.F.2.c.(4) for the continuation of the toxicity testing required in Part I.F.1.; and
 - (C) If applicable, the intent to reduce the number of species tested to the one most sensitive to the toxicity in the effluent under Part I.F.2.c.(4).

e. Compliance Date

The permittee must complete items a., b., c. and d. from Part I.F.2. and reduce toxicity in the effluent discharge to acceptable levels as soon as possible, but no later than three (3) years from the date that toxicity is initially demonstrated in two (2) consecutive toxicity tests (i.e. the date of termination of the second test) as described in Part I.F.1.f.(4).

G. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for formaldehyde at Outfall 004 in accordance with the following schedule:
 - a. The permittee shall submit a written progress report to the Compliance Data Section of the Office of Water Quality (OWQ) twelve (12) months from the effective date of this permit. The progress report shall include a description of the method(s) selected for meeting the newly imposed limitation for formaldehyde, in addition to any other relevant information. The progress report shall also include a specific time line specifying when each of the steps will be taken. The new effluent limits for formaldehyde are deferred for the term of this compliance schedule, unless the new effluent limits can be met at an earlier date. The permittee shall notify the Compliance Data Section of OWQ as soon as the newly imposed effluent limits for formaldehyde can be met. Upon receipt of such notification by OWQ, the final limits for formaldehyde will become effective, but no later than sixty (60) months from the effective date of this permit. Monitoring and reporting of the effluent for these parameters is required during the interim period.

- b. The permittee shall submit a subsequent progress report to the Compliance Data Section of OWQ no later than twenty-four (24) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final effluent limitations and whether the permittee is meeting the timeline set out in the initial progress report.
 - c. The permittee shall submit a subsequent progress report to the Compliance Data Section of OWQ no later than thirty-six (36) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final effluent limitations and whether the permittee is meeting the timeline set out in the initial progress report.
 - d. The permittee shall submit a subsequent progress report to the Compliance Data Section of OWQ no later than forty-eight (48) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final effluent limitations and whether the permittee is meeting the timeline set out in the initial progress report.
 - e. Within thirty (30) days of completion of construction, the permittee shall file with the Industrial NPDES Permits Section of OWQ a notice of installation for the additional pollutant control equipment and a design summary of any modifications.
 - f. The permittee shall comply with the final effluent limitations for formaldehyde no later than sixty (60) months from the effective date of this permit.
2. If the permittee fails to comply with any deadline contained in the foregoing schedule, the permittee shall, within fourteen (14) days following the missed deadline, submit a written notice of noncompliance to the Compliance Data Section of the OWQ stating the cause of noncompliance, any remedial action taken or planned, and the probability of meeting the date fixed for compliance with final effluent limitations.

H. TOXIC ORGANIC POLLUTANT MANAGEMENT PLAN

In order to use the Certification Statement for Total Toxic Organics on Pages 13 and 16 of this permit, the Permittee is required to submit a management plan for toxic organic pollutants. The Toxic Organic Pollutant Management Plan is to be submitted to the Compliance Data Section of the Office of Water Quality within ninety (90) days of the effective date of this permit, and is to include a listing of toxic organic compounds used, the method of disposal, and procedure for ensuring that these compounds do not routinely spill or leak into the process wastewater, noncontact cooling water, groundwater, storm water, or other surface waters.

I. POLLUTION MINIMIZATION PROGRAM

The permittee is required to develop and conduct a pollutant minimization program (PMP) for each pollutant with a WQBEL below the LOQ. This permit contains a WQBEL below the LOQ for Total Residual Chlorine.

During the previous permit term, the permittee demonstrated that the discharge of Total Residual Chlorine that has a WQBEL below the LOQ, is reasonably expected to be in compliance with the WQBEL at the point of discharge into the receiving water. Therefore, an updated pollution minimization program is not required.

- a. The goal of the pollutant minimization program shall be to maintain the effluent at or below the WQBEL. The pollutant minimization program shall include, but is not limited to, the following:
 - (1) Submit a control strategy designed to proceed toward the goal within ninety (90) days of the effective date of this permit.
 - (2) Implementation of appropriate cost-effective control measures, consistent with the control strategy within one hundred and eighty (180) days of the effective date of this permit.
 - (3) Monitor as necessary to record the progress toward the goal. Potential sources of the pollutant shall be monitored on a semi-annual basis. Quarterly monitoring of the influent of the wastewater treatment system is also required. The permittee may request a reduction in this monitoring requirement after four quarters of monitoring data.
 - (4) Submit an annual status to the Commissioner at the address listed in Part I.C.3.g. to the attention of the Office of Water Quality, Compliance Data Section, by January 31 of each year that includes the following information:
 - (i) All minimization program monitoring results for the previous year.
 - (ii) A list of potential sources of the pollutant.
 - (iii) A summary of all actions taken to reduce or eliminate the identified sources of the pollutant.
 - (5) A pollution minimization program may include the submittal of pollution prevention strategies that use changes in production process technology, materials, processes, operations, or procedures to reduce or eliminate the source of the pollutant.

- b. No pollution minimization program is required if the permittee demonstrates that the discharge of a pollutant with a WQBEL below the LOQ is reasonably expected to be in compliance with the WQBEL at the point of discharge into the receiving water. This demonstration may include, but is not limited to, the following:
 - (1) Treatment information, including information derived from modeling the destruction or removal of the pollutant in the treatment process.
 - (2) Mass balance information.
 - (3) Fish tissue studies or other biological studies.
- c. In determining appropriate cost-effective control measures to be implemented in a pollution minimization program, the following factors may be considered:
 - (1) Significance of sources.
 - (2) Economic and technical feasibility.
 - (3) Treatability.

J. REOPENING CLAUSES

This permit may be modified, or alternately, revoked and reissued, after public notice and opportunity for hearing:

- 1. to comply with any applicable effluent limitation or standard issued or approved under 301(b)(2)(C),(D) and (E), 304 (b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. controls any pollutant not limited in the permit.
- 2. to incorporate any of the reopening clause provisions cited at 327 IAC 5-2-16.
- 3. to include a case-specific Limit of Detection (LOD) and/or Limit of Quantitation (LOQ). The permittee must demonstrate that such action is warranted in accordance with the procedures specified under Appendix B, 40 CFR Part 136, using the most sensitive analytical methods approved by EPA under 40 CFR Part 136, or approved by the Commissioner.

4. to specify the use of a different analytical method if a more sensitive analytical method has been specified in or approved under 40 CFR 136 or approved by the Commissioner to monitor for the presence and amount in the effluent of the pollutant for which the WQBEL is established. The permit shall specify, in accordance with 327 IAC 5-2-11.6(h)(2)(B), the LOD and LOQ that can be achieved by use of the specified analytical method.
 5. to comply with any applicable standards, regulations and requirements issued or approved under section 316(b) of the Clean Water Act.
 6. to include revised Streamlined Mercury Variance (SMV) and/or Pollutant Minimization Program Plan (PMPP) requirements.
 7. to include a revised thermal model for determination of permit compliance with thermal requirements, including revised regression model coefficients. Any revision to the existing model must limit the mixing zone to one-half the width of Portage-Burns Waterway; account for the range of the upstream flows and temperature and effluent flows and temperature expected at the site; and account for the combined effect of the discharges from Outfall 002, 003 and 004 on the temperature at the edge of the mixing zone.
 8. to include a reduced monitoring frequency for hexavalent or total chromium at Outfalls 104, 204 and 304 after 2 years of daily monitoring under this permit.
 9. to include less stringent limits for formaldehyde if information is submitted to the Agency that justifies the rederivation of applicable water quality criteria resulting in less stringent WQBELs.
- K. REPORTING REQUIREMENTS FOR SOLVENTS, DEGREASING AGENTS, ROLLING OILS, WATER TREATMENT CHEMICALS AND BIOCIDES

Annually, US Steel Midwest Plant will report, as part of the fourth monthly Discharge Monitoring Report of the following year, the total quantity (lbs/yr) of each solvent, degreasing agent, water treatment chemical, rolling oil and biocide that was purchased for that year and which can be present in any outfall regulated by this permit. This reporting requirement includes all surfactants, anionic cationic and non-ionic, which may be used in part or wholly as a constituent in these compounds.

US Steel Midwest Plant may submit the annual SARA 312 chemical inventory report, in lieu of a separate chemical report, by the end of the first quarter of each year. US Steel Midwest Plant will maintain these files for a period of ten (10) years. Files will include the Material Safety Data Sheet, FIFRA Label for each biocide, chemical name and CAS number for each compound used. If these compounds contain proprietary material, US Steel Midwest Plant may maintain this information in a separate file that can be accessed by U.S. EPA or IDEM personnel with appropriate authority.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit an application for renewal of this permit in accordance with 327 IAC 5-2-8(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. Pursuant to 327 IAC 5-3-2(a)(2), the application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if all of the following occur:

- a. permission is requested in writing before such deadline;
- b. IDEM grants permission to submit the application after the deadline; and
- c. the application is received no later than the permit expiration date.

4. Permit Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

- a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date;
- b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner;
- c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility; and
- d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

5. Permit Actions

- a. In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:
 1. Violation of any terms or conditions of this permit;
 2. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or

3. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the permit, e.g., plant closure, termination of discharge by connection to a POTW, a change in state law that requires the reduction or elimination of the discharge, or information indicating that the permitted discharge poses a substantial threat to human health or welfare.
- b. Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of pollutants discharged; or
 2. the commissioner may request to evaluate whether such cause exists.
- c. In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

6. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or invasion of other private rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

7. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

10. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Environmental Rules Board is liable for a civil penalty not to exceed twenty-five thousand dollars (\$25,000) per day of any violation.

Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation performed under IC 13-14-2-2 commits a class C infraction.

Pursuant to IC 13-30-10-1.5(e), a person who willfully or negligently violates any NPDES permit condition or filing requirement, or any applicable standards or limitations of IC 13-18-3-2.4, IC 13-18-4-5, IC 13-18-12, IC 13-18-14, IC 13-18-15, or IC 13-18-16, commits a Class A misdemeanor.

Pursuant to IC 13-30-10-1.5(i), an offense under IC 13-30-10-1.5(e) is a Level 4 felony if the person knowingly commits the offense and knows that the commission of the offense places another person in imminent danger of death or serious bodily injury. The offense becomes a Level 3 felony if it results in serious bodily injury to any person, and a Level 2 felony if it results in death to any person.

Pursuant to IC 13-30-10-1.5(g), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-8 commits a Class B misdemeanor.

Pursuant to IC 13-30-10-1.5(h), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-9, IC 13-18-10, or IC 13-18-10.5 commits a Class C misdemeanor.

Pursuant to IC 13-30-10-1, a person who knowingly or intentionally makes any false material statement, representation, or certification in any NPDES form, notice, or report commits a Class B misdemeanor.

11. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(10), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10-1, provides that any person who knowingly or intentionally (a) destroys, alters, conceals, or falsely certifies a record, (b) tampers with, falsifies, or renders inaccurate or inoperative a recording or monitoring device or method, including the data gathered from the device or method, or (c) makes a false material statement or representation in any label, manifest, record, report, or other document; all required to be maintained under the terms of a permit issued by the department commits a Class B misdemeanor.

12. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

13. Wastewater treatment plant and certified operators

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), "responsible charge operator" means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

14. Construction Permit

In accordance with IC 13-14-8-11.6, a discharger is not required to obtain a state permit for the modification or construction of a water pollution treatment or control facility if the discharger has an effective NPDES permit.

If the discharger modifies their existing water pollution treatment or control facility or constructs a new water pollution treatment or control facility for the treatment or control of any new influent pollutant or increased levels of any existing pollutant, then, within thirty (30) days after commencement of operation, the discharger shall file with the Department of Environment Management a notice of installation for the additional pollutant control equipment and a design summary of any modifications.

The notice and design summary shall be sent to the Office of Water Quality, Industrial NPDES Permits Section, 100 North Senate Avenue, Indianapolis, IN 46204-2251.

15. Inspection and Entry

In accordance with 327 IAC 5-2-8(8), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and
- d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

16. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

- a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.
- b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Proper Operation and Maintenance

The permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of this permit in accordance with 327 IAC 5-2-8(9).

Neither 327 IAC 5-2-8(9), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(12), the following are requirements for bypass:

- a. The following definitions:
 - (1) "Bypass" means the intentional diversion of a waste stream from any portion of a treatment facility.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. The permittee may allow a bypass to occur that does not cause a violation of the effluent limitations contained in this permit, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to Part II.B.2.c. and d.

- c. The permittee must provide the Commissioner with the following notice:
 - (1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.
 - (2) As required by 327 IAC 5-2-8(11)(C), the permittee shall orally report an unanticipated bypass that exceeds any effluent limitations in the permit within twenty-four (24) hours from the time the permittee becomes aware of such noncompliance. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; and if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. If a complete report is submitted by e-mail within 24 hours of the noncompliance, then that e-mail report will satisfy both the oral and written reporting requirement. E-mails should be sent to wwreports@idem.in.gov.
- d. The following provisions are applicable to bypasses:
 - (1) Except as provided by Part II.B.2.b., bypass is prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless the following occur:
 - (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.
 - (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance.
 - (C) The permittee submitted notices as required under Part II.B.2.c.

- (2) The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.d.(1). The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.
- e. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the "Spill Response and Reporting Requirements" in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(13):

- a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this section, are met.
- c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:
 - (1) An upset occurred, and the permittee has identified the specific cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee complied with any remedial measures required under Part II.A.2; and

- (4) The permittee submitted notice of the upset as required in the "Twenty-Four Hour Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal. The discharge of pollutants in treated wastewater is allowed in compliance with the applicable effluent limitations in Part I. of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(11)(F), the permittee shall give notice to the Commissioner as soon as possible of any planned physical alterations or additions to the permitted facility. In this context, permitted facility refers to a point source discharge, not a wastewater treatment facility. Notice is required only when either of the following applies:

- a. The alteration or addition may meet one of the criteria for determining whether the facility is a new source as defined in 327 IAC 5-1.5.
- b. The alteration or addition could significantly change the nature of, or increase the quantity of, pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in Part I.A. nor to notification requirements in Part II.C.9. of this permit.

Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(10) and 327 IAC 5-2-13 through 15, monitoring results shall be reported at the intervals and in the form specified in "Discharge Monitoring Reports", Part I.C.2.

3. Twenty-Four Hour Reporting Requirements

Pursuant to 327 IAC 5-2-8(11)(C), the permittee shall orally report to the Commissioner information on the following types of noncompliance within 24 hours from the time permittee becomes aware of such noncompliance. If the noncompliance meets the requirements of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made within those prescribed time frames. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge that is in noncompliance are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- a. Any unanticipated bypass which exceeds any effluent limitation in the permit;
- b. Any noncompliance which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the noncomplying circumstances;
- c. Any upset (as defined in Part II.B.3 above) that causes an exceedance of any effluent limitation in the permit.
- d. Violation of a maximum daily discharge limitation for any of the following toxic pollutants: **cadmium, total residual chlorine, hexavalent chromium, total chromium, copper, total cyanide, lead, mercury, nickel, silver, zinc, formaldehyde, naphthalene, tetrachloroethylene**

The permittee can make the oral reports by calling (317)232-8670 during regular business hours and asking for the Compliance Data Section or by calling (317) 233-7745 ((888)233-7745 toll free in Indiana) during non-business hours. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce and eliminate the noncompliance and prevent its recurrence. The Commissioner may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

Alternatively, the permittee may submit a "Bypass/Overflow Report" (State Form 48373) or a "Noncompliance 24-Hour Notification Report" (State Form 52415), whichever is appropriate, to IDEM at (317) 232-8637 or wwreports@idem.in.gov. If a complete e-mail submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then the email report will satisfy both the oral and written reporting requirements.

4. Other Compliance/Noncompliance Reporting

Pursuant to 327 IAC 5-2-8(11)(D), the permittee shall report any instance of noncompliance not reported under the "Twenty-Four Hour Reporting Requirements" in Part II.C.3, or any compliance schedules at the time the pertinent Discharge Monitoring Report is submitted. The report shall contain the information specified in Part II.C.3;

The permittee shall also give advance notice to the Commissioner of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements; and

All reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

5. Other Information

Pursuant to 327 IAC 5-2-8(11)(E), where the permittee becomes aware of a failure to submit any relevant facts or submitted incorrect information in a permit application or in any report, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(15):

- a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:

- (1) For a corporation: by a responsible corporate officer. A "responsible corporate officer" means either of the following:

- a. A president, secretary, treasurer, any vice president of the corporation in charge of a principal business function, or any other person who performs similar policymaking or decision-making functions for the corporation; or

- b. The manager of one (1) or more manufacturing, production, or operating facilities provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty to make major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- (3) For a Federal, State, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.
- (4) Under the proposed Federal E-Reporting Rule, a method will be developed for submittal of all affected reports and documents using electronic signatures that is compliant with the Cross-Media Electronic Reporting Regulation (CROMERR). Enrollment and use of NetDMR currently provides for CROMERR-compliant report submittal.
- b. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described above.
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or a position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
 - (3) The authorization is submitted to the Commissioner.

- c. Electronic Signatures. If documents described in this section are submitted electronically by or on behalf of the NPDES-regulated facility, any person providing the electronic signature for such documents shall meet all relevant requirements of this section, and shall ensure that all of the relevant requirements of 40 CFR part 3 (including, in all cases, subpart D to part 3) (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission.
- d. Certification. Any person signing a document identified under Part II.C.6. shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(15) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance, shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Changes in Discharge of Toxic Substances

Pursuant to 327 IAC 5-2-9, the permittee shall notify the Commissioner as soon as it knows or has reason to know:

- a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant that is not limited in the permit if that discharge will exceed the highest of the following notification levels.
 - (1) One hundred micrograms per liter (100 µg/l);
 - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - (4) A notification level established by the Commissioner on a case-by-case basis, either at the Commissioner's own initiative or upon a petition by the permittee. This notification level may exceed the level specified in subdivisions (1), (2), or (3) but may not exceed the level which can be achieved by the technology-based treatment requirements applicable to the permittee under the CWA (see 327 IAC 5-5-2).
- b. That it has begun or expects to begin to use or manufacture, as an intermediate or final product or byproduct, any toxic pollutant that was not reported in the permit application under 40 CFR 122.21(g)(9). However, this subsection b. does not apply to the permittee's use or manufacture of a toxic pollutant solely under research or laboratory conditions.

10. Future Electronic Reporting Requirements

IDEM is currently developing the technology and infrastructure necessary to allow compliance with the EPA Phase 2 e-reporting requirements per 40 CFR 127.16 and to allow electronic reporting of applications, notices, plans, reports, and other information not covered by the federal e-reporting regulations.

IDEM will notify the permittee when IDEM's e-reporting system is ready for use for one or more applications, notices, plans, reports, or other information. This IDEM notice will identify the specific applications, notices, plans, reports, or other information that are to be submitted electronically and the permittee will be required to use the IDEM electronic reporting system to submit the identified application(s), notice(s), plan(s), report(s), or other information.

See Part I.C.2. of this permit for the current electronic reporting requirements for the submittal of monthly monitoring reports such as the Discharge Monitoring Report (DMR) and the Monthly Monitoring Report (MMR).

PART III Other Requirements

A. Thermal Effluent Requirements

The following thermal requirements are applicable:

1. There shall be no rise in the temperature in Portage-Burns Waterway of greater than 2°F, as determined from upstream temperature and downstream temperature at the edge of the mixing zone.
2. The downstream temperature at the edge of the mixing zone shall not exceed the maximum limits in Temperature Limits-Table 1 below during more than one percent (1%) of the hours in the twelve (12) month period ending with any month: at no time shall the downstream temperature at the edge of the mixing zone exceed the maximum limits in Temperature Limits-Table 1 by more than 3°F:

Temperature Limits-Table 1			
Maximum Instream Water Temperatures (°F)			
January	February	March	December
50	50	60	57

3. The number of hours where the downstream temperature at the edge of the mixing zone exceeds the maximum limits in Temperature Limits Table 1 and the number of days where the downstream temperature exceeds the maximum limits in Temperature Limits Table 1 by more than 3 °F shall be reported on the state monthly monitoring report and the federal discharge monitoring report.
4. The cumulative number of hours where the downstream temperature at the edge of the mixing zone exceeds the maximum limits in Temperature Limits Table 1 during the most recent twelve (12) months period shall be reported on the state monthly monitoring report and federal discharge monitoring report every month. The most recent twelve (12) months shall include the current month and the previous eleven (11) months.
5. The downstream temperature at the edge of the mixing zone shall not exceed the maximum limits in Temperature Limits Table 2 below at any time:

Temperature Limits-Table 2							
Maximum Instream Water Temperatures (°F)							
April	May	June	July	August	September	October	November
65	65	70	70	70	65	65	65

6. The provisions of paragraph 5 above shall be inapplicable at any time when the upstream temperature is within 2 °F of the maximum limitation for that day.
7. The mixing zone is the area in Portage-Burns Waterway extending laterally from Outfall 002 to one-half the width of Portage-Burns Waterway and to a distance of 300 feet downstream of Outfall 004.

8. In order to verify compliance with the above limitations, the permittee is required to report the following information as Outfall 500:

Parameter	Monthly Average	Daily Maximum	Units	Frequency	Sample Type
Intake Temperature	Report	Report	°F	1 X Hourly	[1]
Upstream River Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 002 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 003 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 004 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Downstream River Temperature [2]	Report	Report	°F	1 X Hourly	[3]
Delta T [4]	-----	Report	°F	1 X Daily	[5]

[1] Monitoring and reporting of temperature is to occur on a continuous basis. Temperature measurements shall be recorded continuously in one-hour intervals and the highest single recorded hourly measurement shall be reported on the federal discharge monitoring report as the maximum daily temperature of that month.

[2] The following equation shall be used to calculate the downstream river temperature using concurrent hourly temperature and flow measurements:

$$T_d = \alpha * T_u * \frac{Q_u}{Q_t} + \gamma * T_2 * \frac{Q_2}{Q_t} + \delta * T_3 * \frac{Q_3}{Q_t} + \epsilon * T_4 * \frac{Q_4}{Q_t}$$

where:

T_d = hourly downstream temperature

T_u = hourly river temperature upstream of Outfall 002

T_2 = hourly Outfall 002 temperature

T_3 = hourly Outfall 003 temperature

T_4 = hourly Outfall 004 temperature

Q_u = the 24-hour rolling average flow in Portage-Bums Waterway measured upstream of Outfall 002 (MGD); this flow shall be calculated on an hourly basis as the average of the current hourly flow measurement and the previous 23 hourly flow measurements

Q_2 = hourly outfall 002 flow (MGD)

Q_3 = hourly outfall 003 flow (MGD)

Q_4 = hourly outfall 004 flow (MGD)

$Q_t = Q_u + Q_2 + Q_3 + Q_4$

$\alpha = 1.017$

$\gamma = 1.443$

$\delta = 1.177$

$\epsilon = 0.762$

These coefficients (α , γ , δ , and ϵ) are the coefficients from the June 28, 2013 letter from the permittee and have been approved by IDEM. The coefficients may be updated based upon additional data collection at Buoy A. Any changes shall be submitted for review and approval by IDEM before use by the permittee.

Alternatively, the permittee may measure the downstream temperature, T_d , at the edge of the mixing zone approximately 300 feet downstream of Outfall 004. Temperature measurements shall be taken at mid-stream and at a depth of approximately one meter below the water's surface. An annotation shall be made on the state monthly monitoring report each day this option is used.

- [3] Monitoring and reporting of temperature is to occur on a continuous basis. Temperature measurements shall be recorded continuously in one-hour intervals and the total number of hours above the corresponding maximum limits in Part III.A.2 for the twelve (12) months shall be reported. The twelve (12) months shall include the current month and the previous eleven (11) months. The highest single recorded hourly measurement shall be reported on the federal discharge monitoring report as a maximum daily temperature of that month.
- [4] This is the difference each day between the maximum upstream and maximum downstream (peak) temperature.
- [5] Calculated maximum.

- 9. The following narrative requirements for temperature shall apply outside the mixing zone:
 - a. There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.
 - b. The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.

Part IV
Cooling Water Intake Structures

A. Best Technology Available (BTA) Determination

In accordance with 40 CFR 401.14, the location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact.

The EPA promulgated a CWA section 316(b) regulation on August 15, 2014, which became effective on October 14, 2014. 79 Fed. Reg. 48300-439 (August 15, 2014). This regulation established application requirements and standards for cooling water intake structures. The regulation is applicable to point sources with a cumulative design intake flow (DIF) greater than 2 MGD where 25% or more of the water withdrawn (using the actual intake flow (AIF)) is used exclusively for cooling purposes. The regulation establishes best technology available (BTA) standards to reduce impingement and entrainment of aquatic organisms at existing power generation and manufacturing facilities.

The USS Midwest Plant has a design intake flow (DIF) of 69.12 MGD. The actual intake flow (AIF), as defined under 40 CFR 125.92(a), is the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous five years. The annual actual intake flows from January 2015 through December 2019 was 27.0 MGD and approximately 30% of the intake water on average is used for cooling purposes.

Therefore, since the facility has a DIF greater than 2 MGD, and because the percentage of flow used at the facility exclusively for cooling is greater than 25%, the facility is required to meet the BTA standards for impingement and entrainment mortality, including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under 40 CFR 125.94(g).

Based on available information, IDEM has made a best technology available (BTA) determination that the existing cooling water intake structure represents the best technology available to minimize adverse environmental impact for impingement and entrainment mortality as follows:

1. Based on the available information, IDEM has determined that the facility employs impingement mortality BTA alternative 3 (40 CFR 125.94(c)(3)), operate a CWIS that has a maximum actual through-screen intake velocity under 0.5 fps, and is therefore in compliance with the BTA to minimize adverse environmental impacts from impingement.
2. Further, after considering all the factors that must and may be considered by the federal rules, IDEM has determined that the existing facility meets BTA for entrainment. This is primarily based on the relatively small numbers of organisms likely entrained which is primarily due to the intake location 2800 feet offshore.

B. Permit Requirements

The permittee shall comply with requirements below:

1. In accordance with 40 CFR 125.98(b)(1), nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.
2. The permittee must at all times properly operate and maintain the cooling water intake structure and associated intake equipment.
3. The permittee must inform IDEM of any proposed changes to the cooling water intake structure or proposed changes to operations at the facility that affect the information taken into account in the current BTA evaluation.
4. At a minimum frequency of daily, the permittee must calculate the through-screen velocity at both the off-shore intake and at the inoperable traveling screens using water flow, water depth, and the screen/intake open areas. These velocities and factors used in the calculation shall be reported on the MMR and DMR as Outfall 600, as follows (it is assumed that the open area of the off-shore intake will remain 202.75 square feet for the life of this permit. The permittee is required to notify IDEM if it does change):

Parameter	Monthly Average	Daily Maximum	Units	Frequency
Velocity, Off-shore Intake	-----	Report	Feet/second	Daily
Velocity; Traveling Screens	-----	Report	Feet/second	Daily
Intake Flow	-----	Report	MGD	Daily
Water Depth; Traveling Screens	-----	Report	Feet	Daily
Open Area, Traveling Screens	-----	Report	Square feet	Daily

5. The permittee must either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation as required by 40 CFR 125.96(e). The permittee must conduct such inspections at least weekly to ensure that any technologies operated to comply with 40 CFR 125.94 are maintained and operated to function as designed including those installed to protect Federally-listed threatened or endangered species or designated critical habitat. Alternative procedures can be approved if this requirement is not feasible (e.g., an offshore intake, velocity cap, or during periods of inclement weather).
6. In accordance with 40 CFR 125.97(c), by January 31 of each year, the permittee must submit to the Industrial NPDES Permit Section IDEM-OWQ an annual certification statement for the preceding calendar year signed by the responsible corporate officer as defined in 40 CFR 122.22 (see 327 IAC 5-2-22) subject to the following:

- a. If the information contained in the previous year's annual certification is still pertinent, you may simply state as such in a letter to IDEM and the letter, along with any applicable data submission requirements specified in this section shall constitute the annual certification.
 - b. If you have substantially modified operation of any unit at your facility that impacts cooling water withdrawals or operation of your cooling water intake structure, you must provide a summary of those changes in the report. In addition, you must submit revisions to the information required at 40 CFR 122.21(r) in your next permit application.
7. Best technology available (BTA) determinations for entrainment mortality and impingement mortality at cooling water intake structures will be made in each permit reissuance in accordance with 40 CFR 125.90-98. The permittee must submit all the information required by the applicable provisions of 40 CFR 122.21(r)(2) through (r)(8) with the next renewal application. Since the permittee has submitted the studies required by 40 CFR 122.21(r), the permittee may, in subsequent renewal applications pursuant to 40 CFR 125.95(c), request to reduce the information required if conditions at the facility and in the waterbody remain substantially unchanged since the previous application so long as the relevant previously submitted information remains representative of the current source water, intake structure, cooling water system, and operating conditions. Any habitat designated as critical or species listed as threatened or endangered after issuance of the current permit whose range of habitat or designated critical habitat includes waters where a facility intake is located constitutes potential for a substantial change that must be addressed by the owner/operator in subsequent permit applications, unless the facility received an exemption pursuant to 16 U.S.C. 1536(o) or a permit pursuant to 16 U.S.C. 1539(a) or there is no reasonable expectation of take. The permittee must submit the request for reduced cooling water intake structure and waterbody application information at least **two years and six months** prior to the expiration of the NPDES permit. The request must identify each element in this subsection that it determines has not substantially changed since the previous permit application and the basis for the determination. IDEM has the discretion to accept or reject any part of the request.
8. The permittee shall submit and maintain all the information required by the applicable provisions of 40 CFR 125.97.
9. All required reports must be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

Part V
Streamlined Mercury Variance (SMV)

Introduction

The permittee submitted an application for a streamlined mercury variance (SMV) on February 5, 2021, in accordance with the provisions of 327 IAC 5-3.5. The SMV establishes a streamlined process for obtaining a variance from a water quality criterion used to establish a WQBEL for mercury in an NPDES permit. Based on a review of the SMV application, IDEM has determined the application to be complete as outlined in 327 IAC 5-3.5-4(e). Therefore, the SMV is being incorporated into the NPDES permit in accordance with 327 IAC 5-3.5-6.

Term of SMV

The SMV and the interim discharge limit included in Part I.A.1., Discharge limitations Table, will remain in effect until the NPDES permit expires under IC 13-14-8-9 (amended under SEA 620, May 2005). Pursuant to IC 13-14-8-9(d), when the NPDES permit is extended under IC 13-15-3-6 (administratively extended), the SMV will remain in effect as long as the NPDES permit requirements affected by the SMV are in effect.

Annual Reports

The annual report is a condition of the Pollutant Minimization Program Plan (PMPP) requirements of 327 IAC 5-3.5-9(a)(8). The annual report must describe the permittee's progress toward fulfilling each PMPP requirement, the results of all mercury monitoring within the previous year, and the steps taken to implement the planned activities outlined under the PMPP. The annual report may also include documentation of chemical and equipment replacements, staff education programs, and other initiatives regarding mercury awareness or reductions. The complete inventory and complete evaluation required by the PMPP may be submitted as part of the annual report.

The permittee will submit the annual reports to IDEM on the anniversary of the effective date of this NPDES permit renewal, as indicated on Page 1 of this permit. Annual Reports should be submitted to the Office of Water Quality, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

SMV Renewal

As authorized under 327 IAC 5-3.5-7(a)(1), the permittee may apply for the renewal of an SMV at any time within 180 days prior to the expiration of the NPDES permit. In accordance with 327 IAC 5-3.5-7(c), an application for renewal of the SMV must contain the following:

- All information required for an initial SMV application under 327 IAC 5-3.5-4, including revisions to the PMPP, if applicable.
- A report on implementation of each provision of the PMPP.

- An analysis of the mercury concentrations determined through sampling at the facility's locations that have mercury monitoring requirements in the NPDES permit for the two (2) year period prior to the SMV renewal application.
- A proposed alternative mercury discharge limit, if appropriate, to be evaluated by the department according to 327 IAC 5-3.5-8(b) based on the most recent two (2) years of representative sampling information from the facility.

Renewal of the SMV is subject to a demonstration showing that PMPP implementation has achieved progress toward the goal of reducing mercury from the discharge.

Pollutant Minimization Program Plan (PMPP)

The PMPP is a requirement of the SMV application and is defined in 327 IAC 5-3.5-3(4) as the plan for development and implementation of Pollutant Minimization Program (PMP). The PMP is defined in 327 IAC 5-3.5-3(3) as the program developed by an SMV applicant to identify and minimize the discharge of mercury into the environment. PMPP requirements (including the enforceable parts of the PMPP) are outlined in 327 IAC 5-3.5-9. In accordance with 327 IAC 5-3.5-6, the permittee's PMPP is hereby incorporated within this permit below:

Row ID	Planned Activity	Activity Type	Goal	Measure of Performance	Schedule of Action
1	Complete Inventory	Type 1: Source Characterization	Finalize the inventory mercury containing equipment/materials and chemicals.	Development of a complete inventory.	W/in 9 months of SMV approval. Updated inventory will be provided as part of the Annual Progress Report.
2	Review of Purchasing Policies and Procedures	Type 3: Awareness and Containment Control	1. Review mercury content information from vendors/manufacturers. 2. Restrict or eliminate (as practicable) the purchase of mercury containing chemicals and equipment.	Implementation of Policies and Procedures that address the mercury content of materials.	Implemented/Ongoing.
3	Mercury Awareness Training	Type 3: Awareness and Containment Control	Education and increased awareness.	Expand the existing employee health and safety training program to include additional mercury information.	Within 12 months of SMV approval.
4	Good Housekeeping Practices: <i>Mercury Containing Chemicals and Materials</i>	Type 3: Awareness and Containment Control	Reduce possibility of accidental spills and releases.	Training of employees on good housekeeping practices that reduce the possibility of accidental spills and releases.	Implemented/Ongoing.
5	Maintenance and Cleaning Practices	Type 3: Awareness and Containment Control	Proper and safe-handling during maintenance activities.	Implement procedures to minimize release of mercury from mercury-containing materials during maintenance and cleaning activities.	Implemented/Ongoing.
6	Standard Operating Practices: <i>Spill Prevention and Response: Chemicals and Materials</i>	Type 3: Awareness and Containment Control	Safe and proper spill response for dealing with chemical spills. Reduce possibility of accidental spills and releases.	Training of employees on proper and safe spill response for dealing with chemical spills.	Implemented/Ongoing.
7	Disposal Practices of Mercury-Containing Materials	Type 3: Awareness and Containment Control	Estimate quantity of mercury from materials that are properly disposed of and removed from the site.	Tracking/documentation of number of containers disposed pursuant to applicable disposal/recycling regulations.	Implemented/Ongoing. Estimated disposal quantities will be provided as part of the Annual Progress Report.
8	Disposal Practices of Mercury-Containing Items: <i>Bulbs/Lamps</i>	Type 3: Awareness and Containment Control	Estimate quantity of mercury from equipment that is properly disposed of and removed from the site.	Tracking/documentation of number of containers disposed as a universal waste from lamps/bulbs.	Implemented/Ongoing. Estimated disposal quantities will be provided as part of the Annual Progress Report.

Row ID	Planned Activity	Activity Type	Goal	Measure of Performance	Schedule of Action
9	Disposal Practices of Mercury-Containing Items: <i>Batteries</i>	Type 3: Awareness and Containment Control	Estimate quantity of mercury from batteries that is properly disposed of and removed from the site.	Tracking/documentation of number of containers disposed as a universal waste from mercury-containing batteries.	Implemented/Ongoing. Estimated disposal quantities will be provided as part of the Annual Progress Report.
10	<i>Outfall 004</i> Source Characterization: Water Treatment Additives - High Potential	Type 1: Source Characterization	Estimate the amount of mercury via direct sampling, literature review, and/or vendor information.	Documentation that mercury has been quantified.	Within 1 year of SMV approval for existing materials. For new water treatment additives, w/in 1 year of beginning use.
11	<i>Outfall 004</i> Source Characterization: Water Treatment Additives - Low Potential	Type 1: Source Characterization	Estimate the amount of mercury via direct sampling, literature review, and/or vendor information.	Documentation that mercury has been quantified.	Within 2 years of SMV approval for existing materials. For new water treatment additives, w/in 1 year of beginning use.
12	<i>Outfall 004</i> Source Characterization: Process Chemicals - Low Potential	Type 1: Source Characterization	Estimate the amount of mercury via direct sampling, literature review, and/or vendor information for the low potential process chemicals that meet the usage threshold criteria ^(A) .	Documentation that mercury has been quantified.	Within 1 year of SMV approval for existing materials. For new process chemicals, w/in 1 year of beginning use.
13	<i>Outfalls 004</i> Source Characterization: Process Chemicals - Very Low Potential	Type 1: Source Characterization	Estimate the amount of mercury via direct sampling, literature review, and/or vendor information for the low potential process chemicals that meet the usage threshold criteria ^(A) .	Documentation that mercury has been quantified.	Within 2 years of SMV approval for existing materials. For new process chemicals, w/in 1 year of beginning use.
14	<i>Internal Outfall</i> Source Characterization	Type 1: Source Characterization	Perform additional mercury monitoring of Outfalls 104 and 204 in order to understand the potential mercury contribution from these wastewaters to Outfall 004.	Documentation of evaluation.	Within 12 months of SMV approval.
15	<i>Intake</i> Source Characterization	Type 1: Source Characterization	Perform additional mercury monitoring of the intake (representative of non-contact cooling water) in order to understand the potential mercury contribution from non-contact cooling waters to Outfall 004.	Documentation of evaluation.	Within 12 months of SMV approval.
Row ID	Planned Activity	Activity Type	Goal	Measure of Performance	Schedule of Action
16	Alternatives for Reduction Evaluation: <i>Mercury-Containing Chemicals and Materials</i>	Type 2: Alternatives for Reduction Evaluation	Investigate replacement/reduction options for in-service mercury-containing materials.	Documentation of evaluation.	The scope and schedule of this type of activity will be determined based on the outcome of the various source characterization activities.

Part VI
Operation and Maintenance Plan

The permittee shall implement and comply with Revision 7 of its Wastewater Treatment O&M Manual and Preventative Maintenance Program Plan, dated 4-15-2020, or a later version of this Plan if revised, and approved, if applicable, under its consent decree (a revised consent decree was filed November 20, 2019 and is pending final approval by the United States District Court for the Northern District of Indiana).



**National Pollutant Discharge Elimination System
Fact Sheet for
United States Steel Corporation – Midwest Plant
Draft: April 2021**

Indiana Department of Environmental Management

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

Permittee:	United States Steel Corporation, Midwest Plant One North Broadway, MS 70 Gary, Indiana 46402
Existing Permit Information:	Permit Number: IN0000337 Expiration Date: March 31, 2021
Facility Contact:	Brandon Miller, Environmental Control (319) 888-3369 BSMiller@uss.com
Facility Location:	6300 U.S. Highway 12 Portage, Indiana 46368 Porter County
Receiving Stream(s):	Portage – Burns Waterway (Burns Ditch)
GLI/Non-GLI:	GLI
Proposed Permit Action:	Renew
Date Application Received:	October 1, 2020
Source Category	NPDES Major– Industrial
Permit Writer:	Jennifer Elliot (317) 232-8702 Jelliot@idem.in.gov

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1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM) received a National Pollutant Discharge Elimination System (NPDES) Permit application from U.S. Steel Corporation – Midwest Plant on October 1, 2020.

In accordance with 327 IAC 5-2-6(a), the current five-year permit was issued with an effective date of April 1, 2016. A five-year permit is proposed in accordance with 327 IAC 5-2-6(a).

The Federal Water Pollution Control Act (more commonly known as the Clean Water Act), as amended, (Title 33 of the United States Code (U.S.C.) Section 1251 *et seq.*), requires an NPDES permit for the discharge of pollutants into surface waters. Furthermore, Indiana law requires a permit to control or limit the discharge of any contaminants into state waters or into a publicly owned treatment works. This proposed permit action by IDEM complies with and implements these federal and state requirements.

In accordance with Title 40 of the Code of Federal Regulations (CFR) Sections 124.8 and 124.56, as well as Title 327 of the Indiana Administrative Code (IAC) Article 5-3-8, a Fact Sheet is required for certain NPDES permits. This document fulfills the requirements established in these regulations. This Fact Sheet was prepared in order to document the factors considered in the development of NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, receiving water conditions, Indiana water quality standards-based wasteload allocations, and other information available to IDEM. Decisions to award variances to Water Quality Standards or promulgated effluent guidelines are justified in the Fact Sheet where necessary.

2.0 FACILITY DESCRIPTION

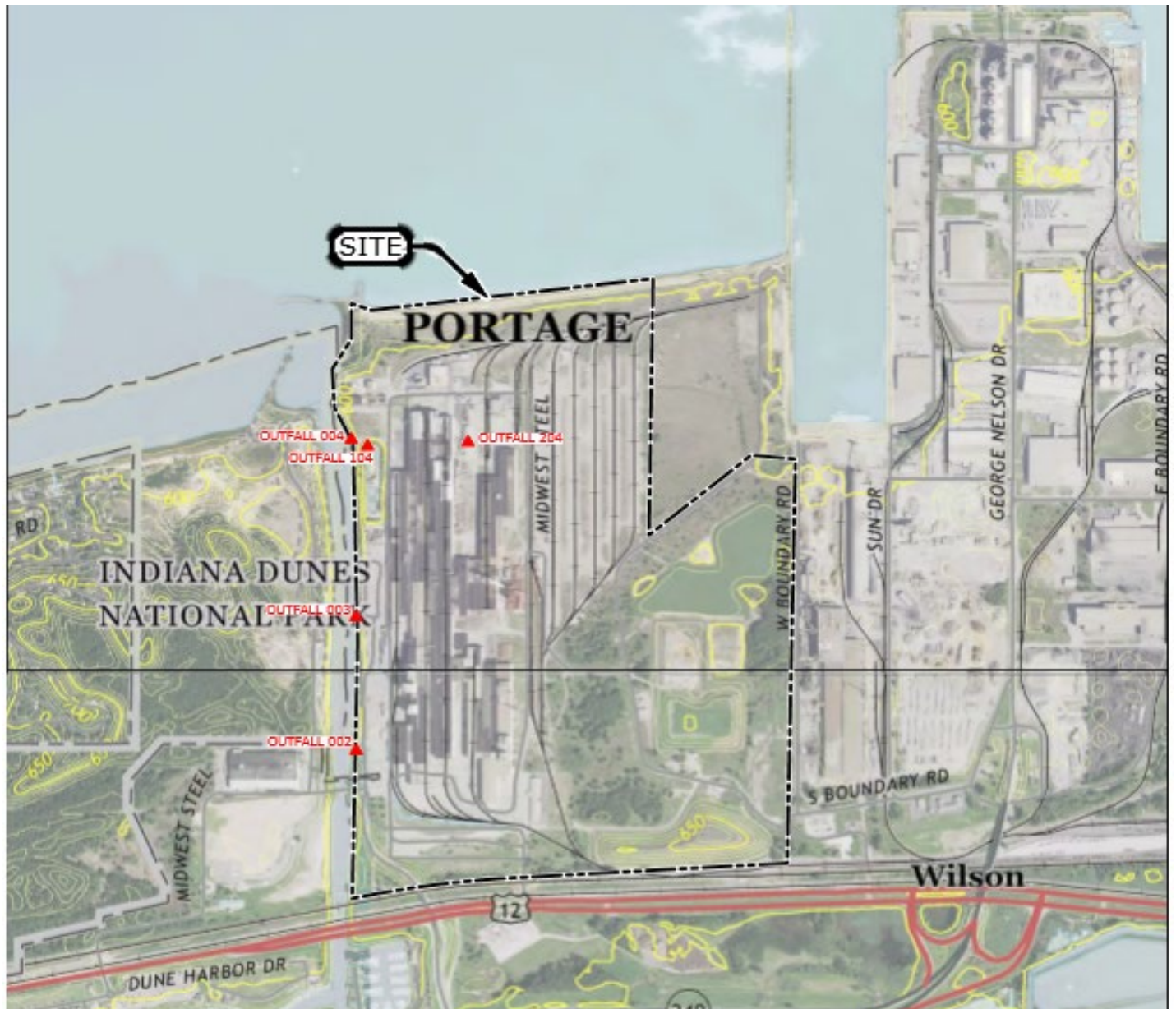
2.1 General

U.S. Steel Corporation, Midwest Plant is classified under Standard Industrial Classification (SIC) Codes **3316 – Cold Rolled Steel**, **3443 – Tin Mill Products** and **3325 – Galvanized Steel**.

The facility manufactures steel and related products. Activities conducted involve acid pickling, cold rolling, alkaline cleaning, operation of sheet temper mill, continuous annealing, electro-galvanizing, and tin electroplating.

A map showing the location of the facility has been included as Figure 1.

Figure 1: Facility Location



6300 U.S. Highway 12
Portage, Indiana 46368
Porter County

2.2 Outfall Locations

Outfall 002	Latitude: 41° 37' 23" Longitude: -87° 10' 33"
Outfall 003	Latitude: 41° 37' 35" Longitude: -87° 10' 33"
Outfall 004	Latitude: 41° 37' 51" Longitude: -87° 10' 33.6"
Outfall 104	Latitude: 41° 37' 50.4" Longitude: -87° 10' 31.7"
Outfall 204	Latitude: 41° 37' 50.8" Longitude: -87° 10' 20"
Outfall 304	This is an administrative compliance point. It does not have a physical location.
Outfall 002S	Latitude: 41° 37' 23" Longitude: -87° 10' 33"
Outfall 003S	Latitude: 41° 37' 35" Longitude: -87° 10' 33"

2.3 Outfall Descriptions and Wastewater Treatment

Each outfall is described in detail below including waste streams, wastewater treatment, and long-term average flow as given in the renewal application Form 2C. Flows given in (parentheses) were used in the wasteload allocation and/or calculation of mass-based limits and are explained in Sections 5.2 and 5.3 of this fact sheet. The facility has an average total discharge of approximately 38.18 MGD.

Outfall 002

The discharge from Outfall 002 is composed of Non-Contact Cooling Water (NCCW) and stormwater. There is no treatment at this outfall. The highest monthly average flow for the last two years, from August 2018 to August 2020, is 0.329 MGD and occurred in March 2019. Outfall 002 discharges to the Portage-Burns Waterway.

Outfall 003

The discharge from Outfall 003 is composed of Non-Contact Cooling Water (NCCW) and stormwater. There is no treatment at this outfall. The highest monthly average flow from the last two years, from August 2018 to August 2020, is 15.17 MGD and occurred in September 2019. Outfall 003 discharges to the Portage-Burns Waterway.

Outfall 004

The discharge from Outfall 004 is composed of Non-Contact Cooling Water (NCCW), stormwater, and process wastewater from internal Outfalls 104 and 204 (Administrative Outfall 304). The highest monthly average flow from the last two years, from August 2018 to August 2020, is 17.06 and occurred in August 2018. Outfall 004 discharges to the Portage-Burns Waterway.

Outfall 104

Outfall 104 is composed of treated non-hexavalent chromium process wastewaters (continuous anneal line, No. 1 and 2 tin recoil lines, electrolytic tinning line, chrome line, No. 3 galvanize line, 72-inch galvanizing line, pickle line, combination line, sheet temper mill), backwashes, washdowns, blowdowns from Portside Energy and the U.S. Steel – Midwest intake. Treatment includes flow equalization and mixing, API oil separating, dissolved air floatation, settling and a filter press. Outfall 104 discharges to the Portage-Burns Waterway via Outfall 304, which discharges via Outfall 004.

Outfall 204

Outfall 204 is composed of Chrome treatment plant effluent (treated Greenbelt II Landfill leachate and hexavalent chromium bearing wastewaters from the Tin Free Steel, Electrolytic Tinning, and Galvanizing Lines). The chrome treatment plant treats hexavalent chrome bearing wastewaters from the Tin Free Steel (TFS), Electrolytic Tinning Lines (ETL), and Galvanizing Lines via a reduction process (i.e., chrome removal) using sodium bisulfite, sulfuric acid, and sodium hydroxide. Outfall 204 discharges to the Portage-Burns Waterway via Outfall 304, which discharges via Outfall 004.

Outfall 304

Outfall 304 is an administrative compliance point and is where the sum of the mass for the internal Outfalls 104 and 204 is applied. Sampling at 104 and 204 must occur on the same day.

Outfall 500

Outfall 500 is an instream compliance point used, to measure compliance with the applicable temperature criteria.

Water balance diagrams have been included as Figures 2a and 2b.

Figure 2a: Water Balance Diagram Outfalls 002, 003 and 004

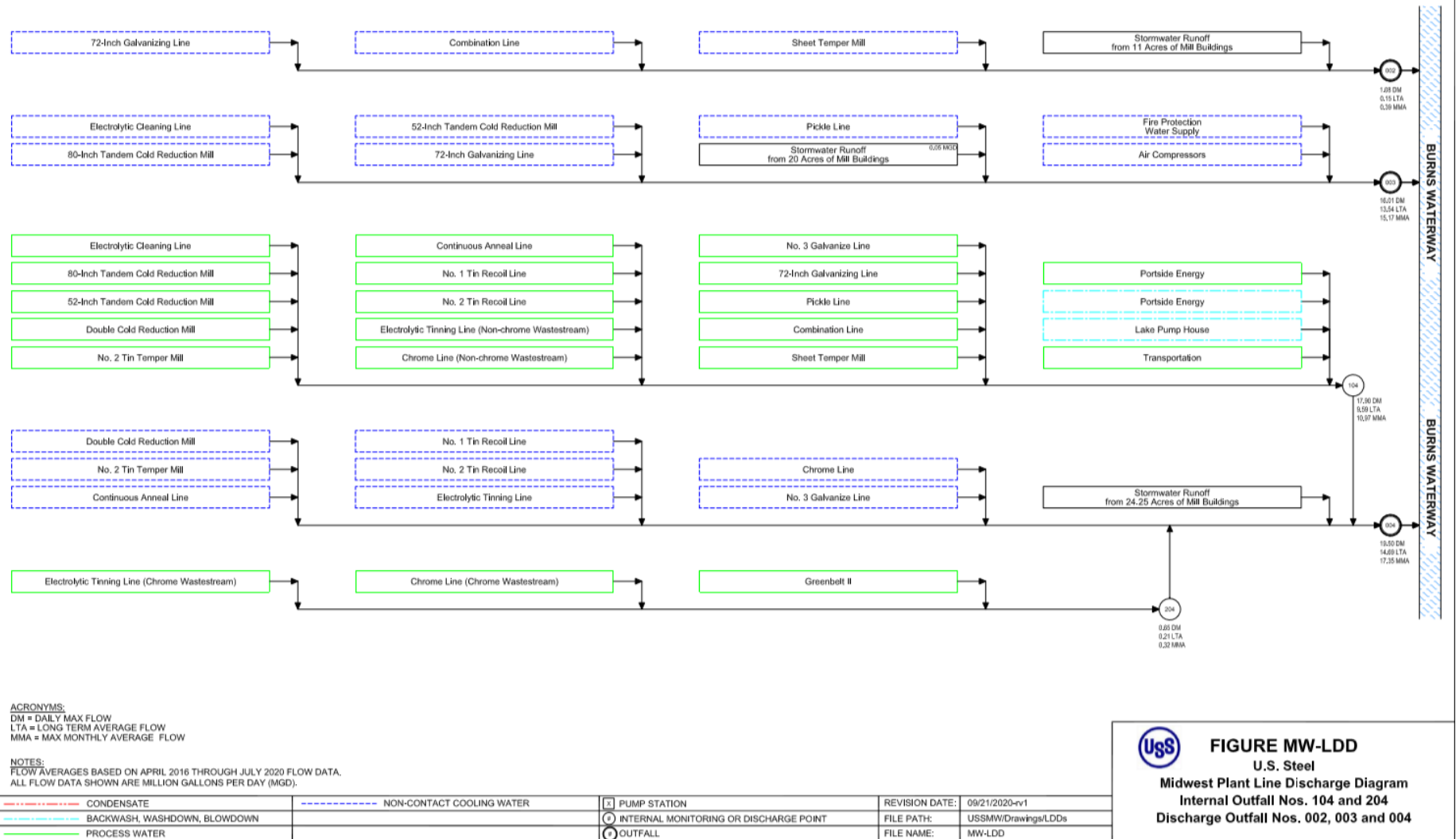
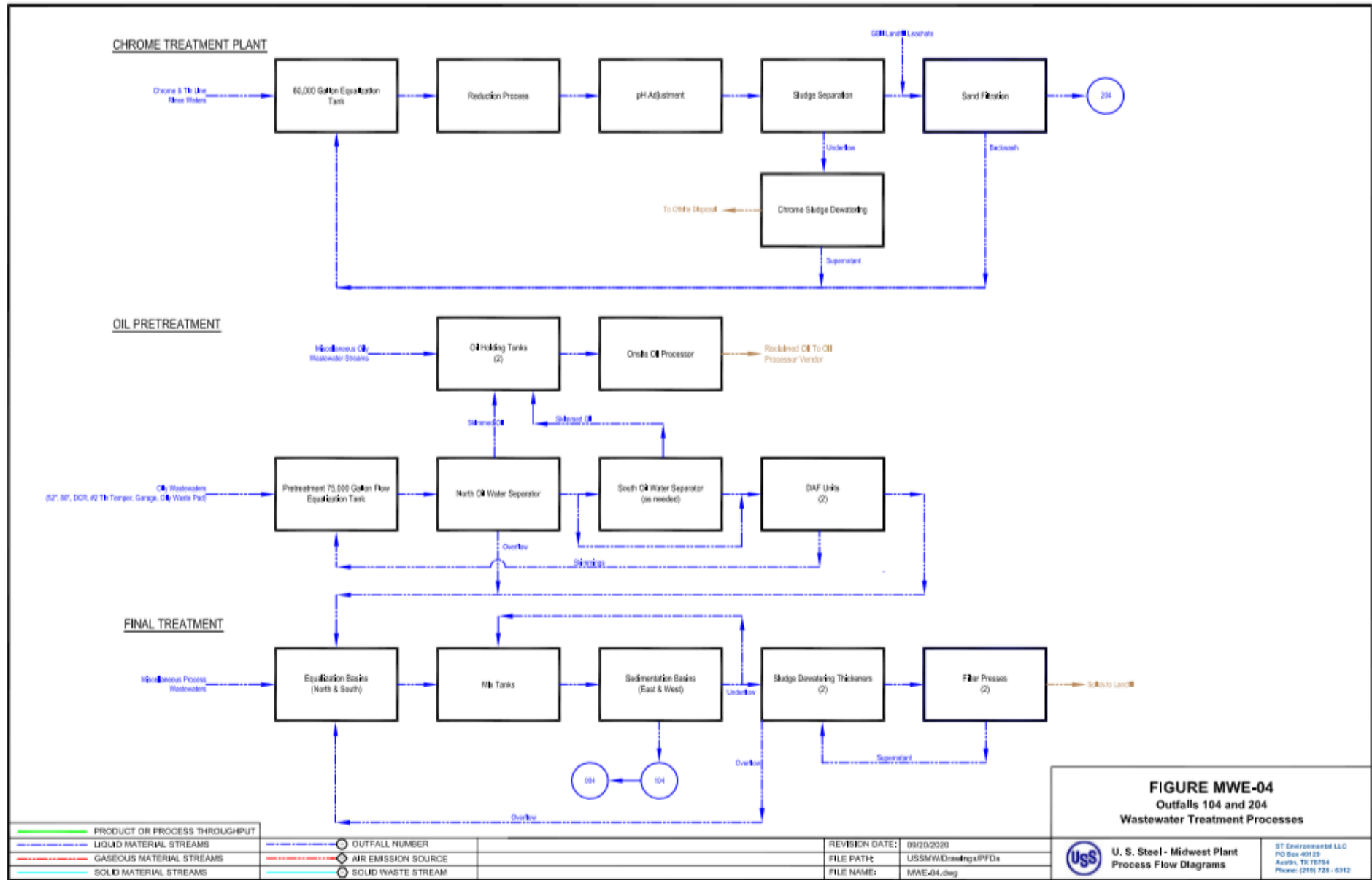


Figure 2b: Water Balance Diagram Outfalls 104 and 204



2.4 Changes in Operation

In the permit application, no changes in operation were identified as occurring since the previous permit renewal.

2.5 Facility Storm Water

There is no suitable storm water sampling location available that will allow effective sampling in accordance with the storm water event requirements. Therefore, under the current permit, the facility conducted storm water sampling at Outfalls 002 and 003 in lieu of sampling at internal monitoring points. This practice is continued for this permit renewal and storm water reporting requirements have been included in Outfalls 002 and 003.

3.0 PERMIT HISTORY

3.1 Compliance History

3.1.1 Review of Discharge Monitoring Report Data

A review of this facility's discharge monitoring data was conducted for compliance verification. This review indicates the permit limitation violations listed in Section 3.1.2.A.1.

3.1.2 Federal and State Enforcement Actions

There are two ongoing enforcement actions related to this NPDES permit. There is a joint federal-state enforcement action that was initiated in April 2018 and a state enforcement action that was initiated by a notice of violation issued October 31, 2019. A summary of these two enforcement actions is as follows:

A. April 2018 Joint State and Federal Enforcement Action

On April 2, 2018, the U.S. Department of Justice, on behalf of the U.S. Environmental Protection Agency, the National Park Service of the United States Department of the Interior, and the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce; and the State of Indiana, on behalf of the Indiana Department of Environmental Management and the Indiana Department of Natural Resources lodged a proposed Consent Decree with the United States District Court for the Northern District of Indiana in *United States and State of Indiana v. United States Steel Corporation*, Civil Action No. 2:18-cv-00127. The lodging of the proposed Decree immediately followed the filing in the same court of a civil complaint (Complaint) against United States Steel Corporation (U.S. Steel).

After lodging the proposed consent decree in April 2018, approximately 2,700 public comments were received, including extensive comments from the City of Chicago and the Surfrider Foundation (plaintiff intervenors in the Governments' action). Having taken those comments into account, a revised proposed decree was filed in November 2019.

U. S. Steel has already complied with several requirements of the proposed decree that was lodged in April 2018, including enhanced daily wastewater sampling, even though the decree has not been in effect.

Once the decree is entered, all of the decree's requirements, including implementation of key operation and maintenance plans and an improved wastewater process monitoring system, will be enforceable. When fully implemented, the decree is expected to help prevent future spills such as the April 2017 spill, and to achieve the decree's objective of promoting U. S. Steel's compliance with the Clean Water Act and related requirements.

Both IDEM and EPA have established websites for this enforcement action at:

IDEM Website: <https://www.in.gov/idem/cleanwater/2538.htm>

EPA Website: <https://www.epa.gov/in/u-s-steel-corporation-consent-decree>

The following is a list of alleged NPDES permit violations listed in the Compliant that was filed for this enforcement action:

1. Violations of Quantitative and Qualitative Limits

Outfall	Violation	Date(s) of Violation	Violation Type
304A	Chromium, Total Recoverable	02/03/2013	Daily Maximum Effluent Limit; Operations & Maintenance
004	Whole Effluent Toxicity, Chronic	Week of 08/04/2013	Quarterly Effluent Limit
004	Discoloration	12/12/2013	Narrative Standard; Operations & Maintenance
500A	Temperature	05/31/2014	Effluent Limit
004	Whole Effluent Toxicity, Chronic	Week of 06/08/2014	Quarterly Effluent Limit
004	Whole Effluent Toxicity, Chronic	Week of 06/22/2014	Quarterly Effluent Limit
500A	Temperature	10/01/2014	Effluent Limit
304A	Oil & Grease	03/19/2015	Daily Maximum Effluent Limit; Operations & Maintenance
004	Discoloration	04/01/2016	Narrative Standard; Operations & Maintenance
004	Discoloration	04/05/2016	Narrative Standard; Operations & Maintenance
500A	Temperature	09/07/2016	Effluent Limit
500A	Temperature	11/02/2016	Effluent Limit
304A	Chromium, Hexavalent	01/12/2017	Daily Maximum Effluent Limit; Operations & Maintenance
500A	Temperature	02/26/2017	Effluent Limit
500A	Temperature	02/27/2017	Effluent Limit
500A	Temperature	02/28/2017	Effluent Limit
304A	Chromium, Total Recoverable	04/10/2017	Daily Maximum Effluent Limit; Operations & Maintenance
004	Discoloration	04/10/2017	Narrative Standard; Operations & Maintenance

Outfall	Violation	Date(s) of Violation	Violation Type
304A	Chromium, Total Recoverable	04/11/2017	Daily Maximum Effluent Limit; Operations & Maintenance
004	Discoloration	04/11/2017	Narrative Standard; Operations & Maintenance
304A	Chromium, Total Recoverable	04/2017	Monthly Average Effluent Limit; Operations & Maintenance
304A	Chromium, Hexavalent	04/11/2017	Daily Maximum Effluent Limit; Operations & Maintenance
304A	Chromium, Hexavalent	04/12/2017	Daily Maximum Effluent Limit; Operations & Maintenance
304A	Chromium, Hexavalent	04/2017	Monthly Average Effluent Limit; Operations & Maintenance
304A	Chromium, Total Recoverable	10/25/2017	Daily Maximum Effluent Limit; Operations & Maintenance

2. Reporting, Monitoring, and Storm Water Violations

Outfall	Violation Type	Date(s) of Violation	Violation Description
304A	Reporting	02/03/2013	Inconsistent values for daily maximum total recoverable chromium
500A	Reporting	10/01/2014	Incorrectly calculated temperature difference
		01/06/2016	
		01/07/2016	
		01/09/2016	
		01/10/2016	
		01/15/2016	
		01/16/2016	
		01/20/2016	
		01/21/2016	
		01/22/2016	
NA	Storm water	1/2016	Failure to submit 2015 SWPPP Annual Report
500A	Reporting	04/23/2016	Incorrectly calculated temperature difference Incorrectly calculated temperature difference Incorrectly calculated temperature difference Incorrectly calculated temperature difference Incorrectly calculated temperature difference
		04/24/2016	
		06/07/2016	
		06/09/2016	
		06/22/2016	
500A	Reporting	06/26/2016	
500A	Reporting	06/28/2016	
500A	Reporting	08/19/2016	
500A	Reporting	08/20/2016	
500A	Reporting	08/21/2016	Incorrectly calculated temperature difference
NA	Reporting	10/2016	Missing Total Toxic Organic Certification
002, 003	Monitoring	12/2016	Failure to monitor weekly pH
204A, 304A	Monitoring	12/2016	Failure to monitor multiple parameters
NA	Storm water	04/20/2017	Incomplete SWPPP

B. October 31, 2019 IDEM Enforcement Action.

With respect to this enforcement action, IDEM issued notice of violations (NOVs) to the permittee on October 31, 2019, December 13, 2019, and February 7, 2020. In addition, an IDEM inspection summary dated October 26, 2020 for an inspection conducted October 7, 2020 noted additional violations and referred those violations to IDEM enforcement. A summary of the violations noted in these NOVs and inspection summary are as follows:

1. Numerous discharges of foam, scum, solids, discolored effluent and/or an oil sheen at Outfall 004 and Outfall 003.
2. Failure to notify downstream users of spills in May and September 2019.
3. Failure to minimize or correct adverse impacts to the environment resulting from permit noncompliance on May 9, 2019 and October 30, 2019.
4. Failure to provide information requested by IDEM in May 2019.
5. Failure to maintain all treatment and collection facilities and systems in good working order on May 9, 2019 and August 20, 2019, and in September 2019 and December 2019.
6. Reporting hourly average temperatures on its DMR instead of the maximum hourly temperatures as required by the permit.
7. Violation of daily maximum copper limitation at Outfall 004 on October 13, 2019.
8. Violation of daily maximum load limit for hexavalent chromium at Outfall 304 on October 30, 2019.
9. Deficiencies in chain of custody reports in August 2020 and September 2020.

4.0 LOCATION OF DISCHARGE/RECEIVING WATER USE DESIGNATION

The receiving stream for Outfalls 002, 003, and 004 is the Portage-Burns Waterway (this stream is also referred to as Burns Ditch [in Indiana water quality rules] and the Little Calumet River [on USGS Topo maps]. The $Q_{7,10}$ low flow value of the Portage-Burns Waterway is 100 cfs.

The Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community in 327 IAC 2-1.5-5(a)(1) and (a)(2). In addition, the “East Branch of Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch” (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery.

The Indiana portion of the open waters of Lake Michigan is classified in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW).

The permittee discharges to a waterbody that has been identified as a water of the state within the Great Lakes system. Therefore, it is subject to NPDES requirements specific to Great Lakes system dischargers under 327 IAC 2-1.5 and 327 IAC 5-2-11.4 through 11.6. These rules contain water quality standards applicable to dischargers within the Great Lakes system and the procedures to calculate and incorporate water quality-based effluent limitations.

A Site Map has been included as Figure 3.

Figure 3: Site Map



4.1 Total Maximum Daily Loads (TMDLs)

Section 303(d) of the Clean Water Act requires states to identify waters, through their Section 305(b) water quality assessments, that do not or are not expected to meet applicable water quality standards with federal technology-based standards alone. States are also required to develop a priority ranking for these waters considering the severity of the pollution and the designated uses of the waters. Once this listing and ranking of impaired waters is completed, the states are required to develop Total Maximum Daily Loads (TMDLs) for these waters in order to achieve compliance with the water quality standards.

Indiana's 2018 303(d) List of Impaired Waters was developed in accordance with Indiana's Water Quality Assessment and 303(d) Listing Methodology for Waterbody Impairments and Total Maximum Daily Load Development for the 2018 Cycle.

The Portage-Burns Waterway, Burns Ditch, (Assessment-Unit INC 0159_02), HUC (40400010509), is on the 2018 303(d) list for PCBs in fish tissue.

A TMDL for the Burns Ditch (Assessment Unit INC 0159-02) has been developed for *E. Coli*.

<https://www.in.gov/idem/nps/2853.htm>

5.0 PERMIT LIMITATIONS

Under 327 IAC 5-2-10 (see also 40 CFR 122.44), NPDES permit limits are based on either TBELs (including TBELs developed on a case-by-case basis using BPJ, where applicable) or WQBELs, whichever is most stringent. The decision to limit or monitor the parameters contained in this permit is based on information contained in the permittee's NPDES application, and other available information relating to the facility and the receiving waterbody. In addition, when renewing a permit, the existing permit limits and the antibacksliding requirements under 327 IAC 5-2-10(a)(11) must be considered.

5.1 Technology-Based Effluent Limits (TBEL)

TBELs require every individual member of a discharge class or category to operate their water pollution control technologies according to industry-wide standards and accepted engineering practices. TBELs are developed by applying the National Effluent Limitation Guidelines (ELGs) established by EPA for specific industrial categories. Technology-based treatment requirements established pursuant to sections 301(b) and 306 of the CWA represent the minimum level of control that must be imposed in an NPDES permit (327 IAC 5-5-2(a)).

In the absence of ELGs, TBELs can also be established on a case-by-case basis using best professional judgment (BPJ) in accordance with 327 IAC 5-2-10 and 327 IAC 5-5 (which implement 40 CFR 122.44, 125.3, and Section 402(a)(1) of the Clean Water Act (CWA)).

For each of the basic steelmaking and steel finishing operations, the NPDES production rates developed by US Steel Midwest were used in combination with the BPT, BAT, BCT effluent limitations and guidelines or NSPS from 40 CFR 420 (Iron and Steel Manufacturing Point Source Category) and 40 CFR 433 (Metal Finishing Point Source Category), as appropriate, to compute the allowable technology based effluent limitations of the regulated pollutants.

The applicable technology based standards for the US Steel Corp, Midwest are contained in 40 CFR 420 Iron and Steel Manufacturing, Subparts I (Acid Pickling), J (Cold Forming), K (Alkaline Cleaning), L (Hot Coating) and 40 CFR 433 – Metal Finishing Category.

Applicable ELG Subparts and Production Levels

ELG Outfall	Current Permit ELG Production (1000 lbs/day)	Renewal Application Max Monthly Production 2015-2020	Production Unit/Area	40 CFR
304 (Acid Pickling)	9,688	7,548	80" Pickle Line	420.92(b)(2)
	2 Units	1 Unit	Fume Scrubber (associated with 80" Pickle Line)	420.92(b)(4)
304 (Cold Forming)	4,082	16,106	80" Sheet Cold Mill	420.102(a)(2)
	10,193	5,190	52" Tin Cold Mill	
	2,455	2,862	Sheet Temper Mill	420.102(a)(3)
			No. 2 Tin Temper Mill	420.102(a)(5)
304 (Alkaline Cleaning)	3,865	1,990	Sheet Batch Annealing	420.112(a)
	3,962	2,094	Tin Continuous Annealing	420.112(b)
	474	1,446	Tin Cleaner Line (CLNM)	420.114(a)
304 (Hot Coating)	3,057	3,533	72" Cont Galvanizing Line	420.122(a)(1)
			48" Galvanizing Line (inactive)	
	1,375	1,278	No. 3 Cont Galvanizing Line	420.124(a)(1)
	--	1 Unit	Fume Scrubber for No. 3 Continuous Galvanizing Line	420.124(c)(1)
304 (Metal Finishing)	2.3MGD/2.162 MGD	2.3 MGD/ 2.162 MGD	Electrolytic Tinning Line	433.13(a)
			Tin Free Steel Line	433.13(a)

Attachment B includes the production/flow values for the applicable operations, the multiplication factors from the applicable Federal Effluent Guidelines, and the resulting technology based effluent limitations applied at Outfall 304.

5.2 Water Quality-Based Effluent Limits

WQBELs are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology. The WQBELs for this facility are based on water quality criteria in 327 IAC 2-1.5-8 or developed under the procedures described in 327 IAC 2-1.5-11 through 16 and implementation procedures in 327 IAC 5. Limitations are required for any parameter which has the reasonable potential to exceed a water quality criterion as determined using the procedures under 327 IAC 5-2-11.5.

For each pollutant receiving TBELs at an internal outfall, and for which water quality criteria or values exist or can be developed, concentration and corresponding mass based WQBELs are calculated at the final outfall. This was done for the following parameters at Outfall 004: **cadmium, hex. chromium, total chromium, copper, lead, nickel, silver, zinc, total cyanide, naphthalene, and tetrachloroethylene**. The mass-based WQBELs at the final outfall were compared to the mass-based TBELs at the internal outfall. Since the facility is authorized to discharge up to the mass-based TBELs at the internal outfall, if the mass-based TBELs at the internal outfall exceed the mass-based WQBELs at the final outfall, the pollutant may be discharged at a level that will cause an excursion above a numeric water quality criterion or value under 327 IAC 2-1.5 and WQBELs are required at the final outfall. This was the case for the following parameters at Outfall 004: **cadmium, copper, lead, nickel and silver**. Therefore,

WQBELs are required for cadmium, copper, lead, nickel and silver at Outfall 004 regardless of the results of the reasonable potential statistical procedure. However, the results of the reasonable potential statistical procedure were used to help establish the monitoring frequency. As part of this renewal, a Waste Load Allocation (WLA) report was completed and is included as Attachment A.

5.3 Effluent Limitations and Monitoring Requirements by Outfall

Under 327 IAC 5-2-10(a) (see also 40 CFR 122.44), NPDES permit requirements are technology-based effluent limitations and standards (including technology-based effluent limitations (TBELs) based on federal effluent limitations guidelines or developed on a case-by-case basis using best professional judgment (BPJ), where applicable), water quality standards-based, or based on other more stringent requirements. The decision to limit or monitor the parameters contained in this permit is based on information contained in the permittee's NPDES application and other available information relating to the facility and the receiving waterbody as well as the applicable federal effluent limitations guidelines. In addition, when renewing a permit, the existing permit limits, the antibacksliding requirements under 327 IAC 5-2-10(a)(11), and the antidegradation requirements under 327 IAC 2-1.3 must be considered.

5.3.1 All External Outfalls

Minimum Narrative Limitations

The narrative water quality criteria contained under 327 IAC 2-1.5-8(b)(1) and (2) have been included in this permit to ensure that these minimum water quality conditions are met.

Flow

The permittee's flow is to be monitored in accordance with 327 IAC 5-2-13(a)(2).

5.3.2 Outfalls 002, 003, and 004

The following provides the rationale for inclusion in the permit for the parameters for which monitoring and/or limitations are included at Outfalls 002, 003, and 004.

pH

Limitations for pH in the proposed permit are based on the criteria established in 327 IAC 2-1.5-8(c)(2).

Total Residual Chlorine (TRC)

The effluent limitations of 0.01 mg/l as a monthly average and 0.02 mg/l as a daily maximum are water quality based and are below the limit of quantitation (LOQ) of 0.06 mg/l. In accordance with 327 IAC 5-2-11.6(h)(3), compliance with the daily maximum limit will be demonstrated when effluent concentrations for total residual chlorine are less

than the LOQ. The permittee must comply with the monthly average limit, but may consider daily values that are less than the LOQ to be zero for purposes of calculating a monthly average value.

In accordance with 327 IAC 5-2-11.6(g)(1), mass limits and a mass-based compliance value for TRC are included in the renewal permit at Outfall 002, based on a flow of 0.329 MGD; Outfall 003, based on a flow of 15.17 MGD; and Outfall 004 based on a flow of 17 MGD. The flows used for calculating mass limits are based on the highest monthly flow from August 2018 to August 2020.

The facility adds chlorine to the intake water for Zebra and Quagga mussel control. At Outfalls 002 and 003, TRC monitoring is required on a daily basis during Zebra and Quagga mussel intake chlorination and must continue for three (3) additional days after Zebra and Quagga mussel treatment has been completed. Outfall 004 requires daily TRC monitoring, regardless of the status of Zebra and Quagga mussel control.

Oil and Grease (O & G)

If oil and grease is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated. The facility is required to investigate and eliminate any significant or measured concentration of oil and grease (quantities in excess of 5 mg/l). The intent of this requirement is to assure that oil and grease is not added to once-through cooling water in measurable quantities (5 mg/l).

Outfall 004

In addition to the parameters listed above, Outfall 004 includes limits and monitoring requirements for Mercury, Free Cyanide, Silver, Cadmium, Copper, Nickel, Lead, Formaldehyde and Hexavalent Chromium, as follows:

Mercury

Mercury has been identified as a pollutant of concern discharged at Outfall 004. A reasonable potential analysis for Mercury was conducted in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b) as part of a Waste Load Allocation analysis performed by the Indiana Department of Environmental Management, WLA002530. The results of the reasonable potential procedure show that there is a reasonable potential to exceed (RPE) a water quality criterion for Mercury, therefore, concentration limits for Mercury of 3.2 ng/l Daily Maximum and 1.3 ng/l Monthly Average, have been included in the permit. Mass limits of 0.00045 lbs/day Daily Maximum and 0.00018 lbs/day Monthly Average have also been included in this permit.

The permittee applied for a Streamlined Mercury Variance. See Section 6.6 for details.

Free Cyanide

A reasonable potential analysis for Free Cyanide was done in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b) as part of a Waste Load

Allocation (WLA002530) analysis performed by the Indiana Department of Environmental Management. The results of the reasonable potential procedure show that there was not a reasonable potential to exceed (RPE) a water quality criterion for Free Cyanide. The monthly average and daily maximum limits for Free Cyanide have been retained upon renewal of this permit as TBELs for total cyanide apply at internal Outfall 304 and insufficient information exists pertaining to potential sources of and treatment for cyanide.

Formaldehyde

Formaldehyde has been identified as a pollutant of concern discharged at Outfall 004. A reasonable potential analysis for Formaldehyde was conducted in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b) as part of a Waste Load Allocation analysis performed by the Indiana Department of Environmental Management, WLA002530. The results of the reasonable potential procedure show that there is a reasonable potential to exceed (RPE) a water quality value for Formaldehyde, therefore, concentration limits for Formaldehyde of 0.24 mg/l Daily Maximum and 1.4 mg/l Monthly Average, have been included in the permit. Mass limits of 34 lbs/day Daily Maximum and 20 lbs/day Monthly Average have also been included in this permit.

Silver, Cadmium, Copper, Nickel, Lead

These parameters have been identified as pollutants of concern, discharged at Outfall 004. The mass-based WQBELs at the final outfall were compared to the mass-based TBELs that apply at internal Outfall 304. The mass-based TBELs at the internal outfall exceed the mass-based WQBELs at the final outfall, therefore, WQBELs are included at Outfall 004. The WQBELs applied in the renewal permit are the more stringent of the limits in the current permit and WQBELs calculated as part of a Waste Load Allocation analysis performed by the Indiana Department of Environmental Management, WLA002530. See Section 5.2 for a detailed discussion on the establishment of limits for these parameters.

Hexavalent Chromium

Due to compliance issues with Hexavalent Chromium, monitoring requirements have been included in this permit at Outfall 004.

5.3.3 Outfall 500 (Temperature Requirements)

The permit establishes an instream compliance point, Outfall 500, to measure compliance with the applicable temperature criteria. The permit authorizes the permittee to either use an equation or use an instream measurement device to determine compliance with the applicable water quality criteria. Section 6.4 of this Fact Sheet describes these temperature requirements in more detail.

5.3.4 Internal Outfalls 104, 204 and 304

The following provides the rationale for inclusion in the permit for the parameters for which monitoring and/or limitations are included at Outfalls 104, 204 and 304.

For all of the parameters below, monitoring requirements only are required at Internal Outfalls 104 and 204. Internal Outfall 304 is an administrative compliance point and is where the sum of the mass limitations for Internal Outfalls 104 and 204 is applied. Sampling at 104 and 204 must occur on the same day.

Flow

The permittee's flow is to be monitored in accordance with 327 IAC 5-2-13(a)(2).

TSS, Oil & Grease, Total Chromium, Total Zinc, Total Cyanide, Hexavalent Chromium, TTO, Tetrachloroethylene, and Naphthalene

The limits calculated using updated information provided in the renewal application are less stringent than those contained in the previous permit, therefore, the limits from the previous permit have been retained in the renewal permit in accordance with the antibacksliding provisions of 40 CFR 122.44(l)(1) and (2).

Fluoride

The limits calculated using updated information provided in the renewal application are less stringent than those contained in the previous permit, therefore, the limits from the previous permit have been retained in the renewal permit in accordance with the antibacksliding provisions of 40 CFR 122.44(l)(1) and (2).

Cadmium, Copper, Lead, Nickel and Silver

The Water Quality-Based Effluent Limitations are more stringent at Outfall 004, therefore, the monitoring requirements at Outfalls 104, 204 and 304 have been retained from the previous permit.

5.4 Whole Effluent Toxicity (WET) TESTING

Under 327 IAC 2-1.5-8(b)(1)(E)(ii), a discharge shall not cause acute toxicity, as measured by whole effluent toxicity (WET) tests, at any point in the waterbody. Under 327 IAC 2-1.5-8(b)(2)(A)(iv) a discharge shall not cause chronic toxicity to aquatic life, outside of the applicable mixing zone, as measured by WET tests. Under 327 IAC 5-2-11.5(c)(2), IDEM may include WET test requirements in an NPDES Permit, or if determined to be necessary, WET limits based on a reasonable potential to exceed water quality standards.

WET monitoring was included for Outfall 004 in the 2016 permit renewal. As part of this permit renewal, a reasonable potential to exceed (RPE) analysis for WET was performed for this outfall. The results show that the discharge from Outfall 004 has a reasonable potential to

exceed the numeric interpretation of the narrative criterion for both acute and chronic WET. Therefore, WQBELs are required for WET. The WQBELs for WET and the toxicity reduction evaluation (TRE) triggers for the permit renewal for Outfall 004 are included in Appendix B of this Fact Sheet. This does not negate the requirement to submit a water treatment additive (WTA) application and/or worksheet for replacement or new additives/chemicals proposed for use at the site.

Due to pathogen interference in the WET testing program at U.S. Steel – Midwest Plant, IDEM has approved the use of the alternative test method of sampling filtration to demonstrate compliance for fathead minnow testing. This method has been approved by U.S. EPA and, based on prior determination by IDEM, is appropriate for use at U.S. Steel – Midwest Plant.

U.S. Steel Midwest Plant entered into a TRE under the current permit due to a WETT failure in September 2020. Therefore, the facility is currently under a compliance schedule for WET and has suspended WET testing. U.S. Steel Midwest Plant is required to complete the TRE by September 1, 2023. TRE reports are due quarterly, for up to 36 months from the September WETT failure. After successful completion of the TRE, WET testing will continue under the renewal permit and be subject to new limits for acute and chronic WET.

5.5 Antibacksliding

Indiana's prohibitions on backsliding under 327 IAC 5-2-10(a)(11) are applicable to BPJ case-by-case technology-based effluent limitations, when proposed to be increased based on subsequently promulgated effluent guidelines under Section 304(b) of the CWA, and limitations based on Indiana water quality standards or treatment standards (327 IAC 5-10). Prohibitions on other types of backsliding (e.g., backsliding from limitations derived from effluent guidelines, from existing case-by-case limitations to new case-by-case limitations, and from conditions such as monitoring requirements that are not effluent limitations) are covered under federal regulation at 40 CFR 122.44(l)(1).

Under 5-2-10(a)(11), unless an exception under 10(a)(11)(B) applies, a permit may not be renewed, reissued or modified to contain effluent limitations that are less stringent than the comparable effluent limitations in the previous permit. For effluent limitations based on Indiana water quality or treatment standards, less stringent effluent limitations may also be allowed if they are in compliance with Section 303(d)(4) of the CWA. Under 40 CFR 122.44(l)(1), a permit may not be renewed or reissued to contain less stringent interim effluent limitations, standards or conditions than the final effluent limitations, standards or conditions in the previous permit unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR 122.62.

The renewal permit includes effluent limitations based on water quality standards, existing effluent guidelines, and case-by-case TBELs. Under 40 CFR 122.62(a)(1), a cause for modification exists when there are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit. Per 327 IAC 5-2-16(d)(1), production changes would constitute as "[m]aterial and substantial alterations or additions to the

discharger's operation which were not covered in the effective permit." The federal ELGs for 40 CFR 420 and 40 CFR 433 have not changed since the previous permit. The calculation of TBELs under existing effluent guidelines in Appendix B provides an increase in applicable limitations for TSS, Oil & Grease, Lead, Zinc, Hexavalent Chromium, Naphthalene and Tetrachloroethylene over those calculated for the 2016 permit renewal. The permittee has not requested an increase in any effluent limitations. IDEM has not made a determination on whether these increases would be considered substantial for purposes of antibacksliding. None of the effluent limitations are proposed to be relaxed, therefore, backsliding is not an issue in this permit renewal.

5.6 Antidegradation

Indiana's Antidegradation Standards and Implementation procedures are outlined in 327 IAC 2-1.3. The antidegradation standards established by 327 IAC 2-1.3-3 apply to all surface waters of the state. The permittee is prohibited from undertaking any deliberate action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless information is submitted to the commissioner demonstrating that the proposed new or increased discharge will not cause a significant lowering of water quality, or an antidegradation demonstration submitted and approved in accordance 327 IAC 2-1.3-5 and 2-1.3-6.

This permit includes new permit limitations for Mercury, Formaldehyde and Whole Effluent Toxicity (WET). In accordance with 327 IAC 2-1.3-1(b), the new or increased permit limitations are not subject to the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 as the new or increased permit limitations are not the result of a deliberate activity taken by the permittee. A reasonable potential analysis was completed using Mercury data from April 2016 to October 2020 and Formaldehyde data included with the permit renewal application. It was found that there is a reasonable potential to exceed water quality standards for these pollutants. Therefore, limits for Mercury, Formaldehyde, and WET are required in the permit.

5.7 Storm Water

Under 327 IAC 5-4-6(d), if an individual permit is required under 327 IAC 5-4-6(a) for discharges consisting entirely of storm water, or if an individual permit is required under 327 IAC 5-2-2 that includes discharge of commingled storm water associated with industrial activity, IDEM may consider the following in determining the requirements to be contained in the permit:

- (1) The provisions in the following: (A) 327 IAC 15-5, 327 IAC 15-6, and 327 IAC 15-13, as appropriate to the type of storm water discharge, (B) NPDES Pesticide General Permit for Point Source Discharges to Waters of the State from the Application of Pesticides, Permit Number ING870000, effective October 31, 2011, available at: <http://www.in.gov/idem/cleanwater/2480.htm#pesticide> or from the IDEM Office of Water Quality, Permits Branch, 100 North Senate Avenue, Indianapolis, IN 46204-2251, and (C) 327 IAC 5-2 [Basic NPDES Requirements], 327 IAC 5-5 [NPDES Criteria and Standards for Technology-based Treatment Requirements], and 327 IAC 5-9 [Best Management Practices; Establishment].

- (2) "Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits", EPA 833-D-96-001, September 1, 1996, available from U.S. EPA, National Service Center for Environmental Publications at <https://www.epa.gov/nscep> or from IDEM.
- (3) The nature of the discharges and activities occurring at the site or facility.
- (4) Other information relevant to the potential impact on water quality.

In accordance with 327 IAC 15-2-2(a), the commissioner may regulate storm water discharges associated with industrial activity, as defined in 40 CFR 122.26(b)(14), consistent with the EPA 2008 NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, as modified, effective May 27, 2009, under an NPDES general permit. Therefore, using Best Professional Judgment to develop case-by-case technology-based limits as authorized by 327 IAC 5-2-10, 327 IAC 5-5, and 327 IAC 5-9 (see also 40 CFR 122.44, 125.3, and Section 402(a)(1) of the Clean Water Act (CWA)), IDEM has developed storm water requirements for individual permits that are consistent with the EPA 2008 NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity. The 2008 Multi-Sector General Permit and Fact Sheet is available from: <https://www.epa.gov/npdes/previous-versions-epas-msgp-documents>.

According to 40 CFR 122.26(b)(14) and 327 IAC 15-6-2 facilities classified under Standard Industrial Classification (SIC) Codes 2216 Coiled Rolled Steel, 3443 – Tin Mill Products and 2225 – Galvanized Steel., are considered to be engaging in “industrial activity” for purposes of 40 CFR 122.26(b). Therefore, the permittee is required to have all storm water discharges associated with industrial activity permitted. Treatment for storm water discharges associated with industrial activities is required to meet, at a minimum, best available technology economically achievable/best conventional pollutant control technology (BAT/BCT) requirements. EPA has determined that non-numeric technology-based effluent limits have been determined to be equal to the best practicable technology (BPT) or BAT/BCT for storm water associated with industrial activity.

Storm water associated with industrial activity must also be assessed to ensure compliance with all water quality standards. Effective implementation of the non-numeric technology-based requirements should, in most cases, control discharges as necessary to meet applicable water quality standards. Violation of any of these effluent limitations constitutes a violation of the permit.

Additionally, IDEM has determined that with the appropriate implementation of the required control measures and Best Management Practices (BMPs) found in Part I.D. of the permit, the discharge of storm water associated with industrial activity from this facility will meet applicable water quality standards and will not cause a significant lowering of water quality. Therefore, the storm water discharge is in compliance with the antidegradation standards found in 327 IAC 2-1.3-3, and pursuant to 327 IAC 2-1.3-4(a)(5), an antidegradation demonstration is not required.

The technology-based effluent limits (TBELs) require the permittee to minimize exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. In doing so, the permittee is required, to the extent technologically available and economically achievable, to either locate industrial materials and activities inside or to protect them with storm resistant coverings. In addition, the permittee is required to: (1) use good housekeeping practices to keep exposed

areas clean, (2) regularly inspect, test, maintain and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in storm water discharges, (3) minimize the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills if or when they occur, (4) stabilize exposed area and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants, (5) divert, infiltrate, reuse, contain or otherwise reduce storm water runoff, to minimize pollutants in the permitted facility discharges, (6) enclose or cover storage piles of salt or piles containing salt used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, (7) train all employees who work in areas where industrial materials or activities are exposed to storm water, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team, (8) ensure that waste, garbage and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged, and (9) minimize generation of dust and off-site tracking of raw, final or waste materials.

To meet the non-numeric effluent limitations in Part I.D.4, the permit requires the facility to select control measures (including BMPs) to address the selection and design considerations in Part I.D.3.

The permittee must control its discharge as necessary to meet applicable water quality standards. It is expected that compliance with the non-numeric technology-based requirements should ensure compliance with applicable water quality standards. However, if at any time the permittee, or IDEM, determines that the discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective actions, and conduct follow-up monitoring and IDEM may impose additional water quality-based limitations.

“Terms and Conditions” to Provide Information in a Storm Water Pollution Prevention Plan (SWPPP)

Distinct from the effluent limitation provisions in the permit, the permit requires the discharger to prepare a SWPPP for the permitted facility. The SWPPP is intended to document the selection, design, installation, and implementation (including inspection, maintenance, monitoring, and corrective action) of control measures being used to comply with the effluent limits set forth in Part I.D. of the permit. In general, the SWPPP must be kept up-to-date, and modified when necessary, to reflect any changes in control measures that were found to be necessary to meet the effluent limitations in the permit.

The requirement to prepare a SWPPP is not an effluent limitation. Rather, it documents what practices the discharger is implementing to meet the effluent limitations in Part I.D. of the permit. The SWPPP is not an effluent limitation because it does not restrict quantities, rates, and concentrations of constituents which are discharged. Instead, the requirement to develop a SWPPP is a permit “term or condition” authorized under sections 402(a)(2) and 308 of the Act. Section 402(a)(2) states, “[t]he Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.” The SWPPP requirements set forth in this permit are terms or conditions

under the CWA because the discharger is documenting information on how it intends to comply with the effluent limitations (and inspection and evaluation requirements) contained elsewhere in the permit. Thus, the requirement to develop a SWPPP and keep it up to date is no different than other information collection conditions, as authorized by 327 IAC 5-1-3 (see also CWA section 402(a)(2)).

It should be noted that EPA has developed a guidance document, "Developing your Storm Water Pollution Prevention Plan – A guide for Industrial Operators (EPA 833-B09-002), February 2009, to assist facilities in developing a SWPPP. The guidance contains worksheets, checklists, and model forms that should assist a facility in developing a SWPPP.

Public availability of documents

Part I.E.2.d(2) of the permit requires that the permittee retain a copy of the current SWPPP at the facility and make it immediately available, at the time of an onsite inspection or upon request, to IDEM. When submitting the SWPPP to IDEM, if any information in the SWPPP is considered to be confidential, that information shall be submitted in accordance with 327 IAC 12.1. Interested persons can request a copy of the SWPPP through IDEM. Any information that is confidential pursuant to Indiana law will not be released to the public.

5.8 Water Treatment Additives

In the event that changes are to be made in the use of water treatment additives that could significantly change the nature of or increase the discharge concentration of any of the additives contributing to an outfall governed under the permit, the permittee must apply for and obtain approval from IDEM prior to such discharge. Discharges of any such additives must meet Indiana water quality standards. The permittee must apply for permission to use water treatment additives by completing and submitting State Form 50000 (Application for Approval to Use Water Treatment Additives) available at: <http://www.in.gov/idem/5157.htm> and submitting any needed supplemental information. In the review and approval process, IDEM determines, based on the information submitted with the application, whether the use of any new or changed water treatment additives/chemicals or dosage rates could potentially cause the discharge from any permitted outfall to cause chronic or acute toxicity in the receiving water.

The authority for this requirement can be found under one or more of the following: 327 IAC 5-2-8(11)(B), which generally requires advance notice of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements; 327 IAC 5-2-8(11)(F)(ii), which generally requires notice as soon as possible of any planned physical alterations or additions to the permitted facility if the alteration or addition could significantly change the nature of, or increase the quantity of, pollutants discharged; and 327 IAC 5-2-9(2) which generally requires notice as soon as the discharger knows or has reason to know that the discharger has begun or expects to begin to use or manufacture, as an intermediate or final product or byproduct, any toxic pollutant that was not reported in the permit application.

The following is a list of water treatment additives currently approved for use at the facility:

Outfall	Item	Purpose/Application	Area
Outfall 002	Sodium Bisulfite	Dechlorination	Final Discharge to Burns Waterway
	Sodium Hypochlorite	Biocide for Mussel Control	Lake Water Pump Station
Outfall 003	Sodium Bisulfite	Dechlorination	Final Discharge to Burns Waterway
	Sodium Hypochlorite	Biocide for Mussel Control	Lake Water Pump Station
Outfall 004	ChemTreat BL-1307	pH Control	API Interceptor
	ChemTreat CL-240	Antifoam	Final Treatment
	ChemTreat CL-2480	Corrosion Inhibitor	Haskris Coolers
	ChemTreat CL-2865	Corrosion Inhibitor	3CL - Rectifier Closed Loop Cooling
	ChemTreat CL-2875	Corrosion Inhibitor	3CL - Pot Melt Closed Loop Cooling System
	ChemTreat CL-4442	Scale Inhibitor/Dispersant	3CL - Hot Water Rinse System
	ChemTreat FO-120	Antifoam	Final Treatment
	Lime	pH Control / Sludge Dewatering	Final Treatment
	Magnesium Hydroxide	Sludge Dewatering	Final Treatment
	ChemTreat P-817E	Polymer Flocculant	Chrome Treatment / Final Treatment
	ChemTreat P-841L	Coagulant	API Interceptor
	ChemTreat P8905L	Coagulant	API Interceptor
	ChemTreatP-891L	Coagulant	Chrome Treatment / Final Treatment
	ChemTreat S-101	Coagulant	Final Treatment
	Sodium Bisulfite	Dechlorination	Final Discharge to Burns Waterway
	Sodium Hypochlorite	Biocide for Mussel Control	Lake Water Pump Station
	Sulfuric Acid	pH Control	Chrome Treatment / Final Treatment
	Sodium Hydroxide	pH Control	Chrome Treatment
	AB Phycomycin SCP	Algae and Fungus Control	Final Treatment (Sedimentation Basin)
	Hydrogen Peroxide	Algae and Fungus Control; Potable Water Treatment	Final Treatment (Sedimentation Basin); Mix point of Outfall 104 and 004 piping

6.0 PERMIT DRAFT DISCUSSION

6.1 Discharge Limitations, Monitoring Conditions and Rationale

The proposed final effluent limitations are based on the more stringent of the Indiana water quality-based effluent limitations (WQBELs), technology-based effluent limitations (TBELs), or approved total maximum daily loads (TMDLs) and NPDES regulations as appropriate for each regulated outfall. Section 5.3 of this document explains the rationale for the effluent limitations at each Outfall.

6.1.1 Monitoring Frequency and Sample Type Requirements

With the following exceptions, the monitoring frequencies and sample types have not changed:

- At Outfalls 104, 204 and 304, the sampling frequency for total chromium has been increased from 5 X weekly to daily and the sampling frequency for hexavalent chromium has been increased from weekly to daily. This increase is primarily included because of the April 11, 2017 spill in which process wastewater containing high concentrations of hexavalent chromium and total chromium was discharged to the receiving waters and the resulting Federal-State enforcement action. In addition to the violations which occurred as a result of this April 2017 incident, at Outfall 304, the permittee did also violate its total chromium limit in October 2017 and its hexavalent chromium limit in January and October 2017 and October 2019.

Under VI.12.a of the revised consent decree that was filed November 20, 2019 (Revised Consent Decree) and is pending final approval by the United States District Court for the Northern District of Indiana, the permittee is required to monitor for total and hexavalent

chromium daily at Outfalls 104 and 204. Under VI.12.b. of the Revised Consent Decree, the permittee was required to address the requirements related to hexavalent and total chromium required by VI.12.a of the Revised Consent Decree in its permit renewal application. In addition, the Revised Consent Decree allowed the permittee to request a reduced monitoring frequency as part of its permit application. In its application, the permittee did not request a reduction in this monitoring frequency but did request that the permit include a reopening clause that would allow a reduction in the future. The permittee also requested the inclusion of specific language in the permit with respect to these monitoring requirements. This language was included in Attachment IV of the renewal permit application. IDEM has incorporated the requested reopening clause and language into the permit.

- The monitoring frequency for copper at Outfall 004 has been increased from 2 X monthly to weekly. The permittee has reported recent violations of its copper limit at this outfall in August and October 2019 and November 2020; therefore, an increase in the monitoring frequency is warranted for this parameter at this outfall.
- The monitoring frequencies for Silver, Cadmium, Nickel and Lead has decreased from 2 X Monthly to 1 X Monthly.

6.1.2 Analytical and Sampling Methods

As specified at 327 IAC 5-2-13(d)(1), test procedures identified in 40 CFR 136, including analytical and sampling methods, shall be used for pollutants or pollutant parameters listed in that part unless an alternate test procedure has been approved under 40 CFR 136.5. The State of Indiana has currently incorporated by reference the July 1, 2016 version of 40 CFR 136 under 327 IAC 5-2-1.5 and 327 IAC 1-1-2; therefore, this is the version of 40 CFR 136 currently applicable in NPDES permits.

Outfall 002: Non-Contact Cooling Water and Storm Water

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	Weekly	24 Hour Total
Oil and Grease	-	-	-	-	Report	mg/l	Weekly	Grab
Total Residual Chlorine	0.03	0.05	lbs/day	0.01	0.02	mg/l	Daily	Grab
TSS	-	-	-	-	Report	mg/l	Quarterly	Grab
COD	-	-	-	-	Report	mg/l	Quarterly	Grab
Ammonia	-	-	-	-	Report	mg/l	Quarterly	Grab
Zinc	-	-	-	-	Report	mg/l	Quarterly	Grab

Parameter	Daily Minimum	Daily Maximum	Units	Minimum Frequency	Sample Type
pH	6.0	9.0	Std Units	Weekly	Grab

- Mass Limits were calculated using a flow of 0.329 MGD which was the highest monthly flow in the last 2 years.

Outfall 003: Non-Contact Cooling Water and Storm Water

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	Weekly	24 Hour Total
Oil and Grease	-	-	-	-	Report	mg/l	Weekly	Grab
Total Residual Chlorine	1.3	2.5	lbs/day	0.01	0.02	mg/l	Daily	Grab
TSS	-	-	-	-	Report	mg/l	Quarterly	Grab
COD	-	-	-	-	Report	mg/l	Quarterly	Grab
Ammonia	-	-	-	-	Report	mg/l	Quarterly	Grab
Zinc	-	-	-	-	Report	mg/l	Quarterly	Grab

Parameter	Daily Minimum	Daily Maximum	Units	Minimum Frequency	Sample Type
pH	6.0	9.0	Std Units	Weekly	Grab

- Mass Limits were calculated using a flow of 15.17 MGD which was the highest monthly flow in the last 2 years.

Outfall 004: Non-Contact Cooling Water (NCCW), storm water, and process wastewater from internal Outfalls 104 and 204 (Administrative Outfall 304)

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hour Total
Oil and Grease	-	-	-	-	Report	mg/l	5 X Weekly	Grab
Silver	0.012	0.021	lbs/day	0.076	0.13	ug/l	1 X Monthly	24 Hour Comp
Free Cyanide	1.2	2.1	lbs/day	0.0075	0.013	mg/l	2 X Monthly	Grab
Total Residual Chlorine	1.4	2.8	lbs/day	0.01	0.02	mg/l	Daily	Grab
Cadmium	1.2	2.1	lbs/day	0.0077	0.013	mg/l	1 X Monthly	24 Hour Comp
Nickel	31	54	lbs/day	0.21	0.36	mg/l	1 X Monthly	24 Hour Comp
Lead	5.8	9.9	lbs/day	0.038	0.066	mg/l	1 X Monthly	24 Hour Comp
Copper	4.7	8.2	lbs/day	0.030	0.052	mg/l	1 X Weekly	24 Hour Comp
Mercury	0.00018	0.00045	lbs/day	1.3	3.2	ng/l	6 X Annually	Grab
WQBELs Interim Discharge Limits	-----	-----	-----	18	Report	ng/l	6 X Annually	Grab
Hexavalent Chromium	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	Grab
Formaldehyde	Report	Report	lbs/day	Report	Report	mg/l	2 X Monthly	Grab
Interim Final	20	34	lbs/day	0.14	0.24	mg/l	2 X Monthly	Grab
Whole Effluent Toxicity								
Acute	-----	-----	-----	-----	1.0	TU _a	Quarterly	24-Hr. Comp.
Chronic	-----	-----	-----	2.0	-----	TU _c	Quarterly	24-Hr. Comp.

Parameter	Daily Minimum	Daily Maximum	Units	Minimum Frequency	Sample Type
pH	6.0	9.0	Std Units	5 X Weekly	Grab

- Mass Limits for TRC, were calculated using a flow of 17 MGD which was the highest monthly flow in the last 2 years.

WQBEL in Mass

TRC = (0.01*17*8.345)= 1.4 lbs/day Avg

(0.02*17*8.345) = 2.8 lbs/day Max

Outfall 104: Treated non-hexavalent chromium process wastewaters (continuous anneal line, No. 1 and 2 tin recoil lines, electrolytic tinning line, chrome line, No. 3 galvanize line. 72-inch galvanizing line, pickle line, combination line, sheet temper mill), backwashes, washdowns, blowdowns from Portside Energy and the U.S. Steel – Midwest intake. Applicable Effluent Guidelines are 40 CFR 420 and 40 CFR 433. The pollutants covered by the guidelines are: Cadmium, Total Chromium, Hexavalent Chromium, Copper, Total Cyanide, Lead, Nickel, Silver, Zinc, TTO, Naphthalene and Tetrachloroethylene.

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hour Total
TSS	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Oil & Grease	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	3 grabs/24 Hr Comp
Total Chromium	Report	Report	lbs/day	Report	Report	mg/l	Daily	24 Hr. Comp
Zinc	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Lead	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Nickel	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Cadmium	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Copper	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr. Comp
Silver	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Total Cyanide	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	Grab
Hexavalent Chromium	Report	Report	lbs/day	Report	Report	mg/l	Daily	Grab
Naphthalene	-	Report	lbs/day	-	Report	mg/l	Monthly	Grab
Tetrachloroethylene	-	Report	lbs/day	Report	Report	mg/l	Monthly	Grab
TTO	-	Report	lbs/day	-	Report	mg/l	Monthly	24 Hr. Comp
Fluoride	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp

Outfall 204: Chrome treatment plant effluent (treated Greenbelt II Landfill leachate and hexavalent chromium bearing wastewaters from the Tin Free Steel, Electrolytic Tinning, and Galvanizing Lines). The chrome treatment plant treats hexavalent Chrome wastewaters from the Tin Free Steel (TFS), Electroplating Tinning Lines (ETL), and Galvanizing Lines via a reduction process (i.e., chrome removal) using sodium bisulfite, sulfuric acid, and sodium hydroxide.

Parameter	Daily Maximum	Monthly Average	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hour Total
TSS	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Oil & Grease	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	3 grabs/24 Hr Comp
Total Chromium	Report	Report	lbs/day	Report	Report	mg/l	Daily	24 Hr. Comp
Zinc	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Lead	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Nickel	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Cadmium	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Copper	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr. Comp
Silver	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Total Cyanide	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	Grab
Hexavalent Chromium	Report	Report	lbs/day	Report	Report	mg/l	Daily	Grab
Naphthalene	-	Report	lbs/day	-	Report	mg/l	Monthly	Grab
Tetrachloroethylene	-	Report	lbs/day	Report	Report	mg/l	Monthly	Grab
TTO	-	Report	lbs/day	-	Report	mg/l	Monthly	24 Hr. Comp
Fluoride	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp

Outfall 304: Administrative Combination of Outfalls 104 and 204

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	-	-	-	5 X Weekly	24 Hour Total
TSS	1147	2290	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Oil & Grease	-	765	lbs/day	Report	Report	mg/l	5 X Weekly	3 grabs/24 Hr Comp
Total Chromium	10.0	30.0	lbs/day	Report	Report	mg/l	Daily	24 Hr. Comp
Zinc	10.0	30.0	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp
Lead	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Nickel	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Cadmium	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Copper	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr. Comp
Silver	Report	Report	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp
Total Cyanide	3.41	7.95	lbs/day	Report	Report	mg/l	5 X Weekly	Grab
Hexavalent Chromium	0.17	0.51	lbs/day	Report	Report	mg/l	Daily	Grab
Naphthalene	-	0.86	lbs/day	-	Report	mg/l	Monthly	Grab
Tetrachloroethylene	-	1.29	lbs/day	-	Report	mg/l	Monthly	Grab
TTO	-	38.43	lbs/day	-	Report	mg/l	Monthly	24 Hr. Comp
Fluoride	150	400	lbs/day	Report	Report	mg/l	Monthly	24 Hr. Comp

Outfall 600

At a minimum frequency of daily, the permittee must calculate the through-screen velocity at both the off-shore intake and at the inoperable traveling screens using water flow, water depth, and the screen/intake open areas. These velocities and factors used in the calculation shall be reported on the MMR and DMR as Outfall 600, as follows (it is assumed that the open area of the off-shore intake will remain 202.75 square feet for the life of this permit. The permittee is required to notify IDEM if it does change). Refer to Section 6.5 of this Fact Sheet for a full discussion on the Cooling Water Intake Structure(s).

Parameter	Monthly Average	Daily Maximum	Units	Frequency
Velocity, Off-shore Intake	-----	Report	Feet/second	Daily
Velocity; Traveling Screens	-----	0.5	Feet/second	Daily
Intake Flow	-----	Report	MGD	Daily
Water Depth; Traveling Screens	-----	Report	Feet	Daily
Open Area, Traveling Screens	-----	Report	Square feet	Daily

6.2 Schedule of Compliance

The draft permit contains new effluent limits for Formaldehyde. In accordance with 327 IAC 5-2-12.1 (see also 40 CFR 122.47(a)), a schedule of compliance is allowed in an NPDES permit when requested and justified by the permittee, but only when appropriate and when the schedule of compliance requires achievement of compliance “as soon as possible” and meets other specified conditions. Before a schedule of compliance can be included in a permit, the permittee must submit a request for the schedule to IDEM and demonstrate that they meet the requirements for such a schedule pursuant to 327 IAC 5-2-12.1.

The permittee has requested and provided justification for a sixty (60) month schedule of compliance. IDEM believes that this is a reasonable amount of time to comply with the new water quality based effluent limitation. The 60-month schedule of compliance has been included in Part I.G. of the permit.

6.3 Consent Decree Requirement-Wastewater Operation and Maintenance Plan

Pursuant to VI.10.f of the Revised Consent Decree that was filed November 20, 2019 (Revised Consent Decree) and is pending final approval by the United States District Court for the Northern District of Indiana, the permittee was required to, “at the time of renewal of its Permit and as part of its application for renewal, submit to IDEM the most current O&M Plan that includes the requirements of Paragraph 10(a)-(e) [of the Revised Consent Decree]. The renewal application shall include a request that the renewed Permit contain the requirements to develop, implement, and review the O&M Plan pursuant to Paragraph 10(a)-(e) [of the Revised Consent Decree].”

The permittee included this information, including Revision 7 of its Wastewater Treatment O&M Manual and Preventative Maintenance Program Plan, dated 4-15-2020, as Attachment III of its NPDES permit renewal application.

The proposed permit includes the requirements to develop, implement, and review the O&M Plan pursuant to Paragraph 10(a)-(e) of the Revised Consent Decree.

6.4 Thermal Effluent Requirements

6.4.1 History of Thermal Requirements

A. NPDES Permit Issued January 31, 2011

The following is an excerpt from the Fact Sheet for the NPDES Permit issued January 31, 2011:

Noncontact cooling water is discharged at Outfalls 002, 003 and 004. The temperature of the effluent from the combined outfalls is regulated under 327 IAC 2-1.5-8(c)(4) for a warm water aquatic community. As Portage-Burns Waterway is designated as a salmonid water under 327 IAC 2-1.5-5(a)(3)(B), the effluent temperature is also regulated under 327 IAC 2-1.5-8(d)(2) for cold water fish. According to the Lake Michigan Fisheries Office of the Indiana Department of Natural Resources, spawning and imprinting of salmonids occurs from September through the end of May annually and can occur at any place in the watershed. The temperature criteria for a warm water aquatic community and for cold water fish apply outside of a mixing zone.

327 IAC 2-1.5-8(c)(4) sets a maximum temperature limit by month, while 327 IAC 2-1.5-8(d)(2)(A) prohibits temperatures from exceeding 70° F at any time, and 327 IAC 2-1.5-8(d)(2)(B) prohibits temperatures from exceeding 65° F during spawning and imprinting of salmonids. 327 IAC 2-1.5-8(d)(2) states that these temperature limits apply unless due to natural causes. Therefore, the temperature limits for cold water fish are inapplicable when measured temperatures upstream of the discharge from Outfalls 002, 003 and 004 equal or exceed the temperature limit for that day. 327 IAC 2-1.5-8(d)(2) also states that the maximum temperature rise above natural shall not exceed 2°F at any time or place.

The thermal effluent requirements in the previous permit are based on temperature criteria that applied prior to the 1990 change in water quality standards. Prior to 1990, Portage-Burns Waterway was considered a migration route for salmonids, so the permit included temperature criteria for migration routes for those months where they were more stringent than criteria that applied to a warm water aquatic community. Portage-Burns Waterway is now designated as a salmonid water and the temperature criteria are more stringent than those that applied to salmonid migration routes. Therefore, the temperature limits in the previous permit were updated to include the more stringent of the temperature criteria for cold water fish in 2-1.5-8(d) or for a warm water aquatic community in 2-1.5-8(c)(4). The previous permit includes a provision for instances where the upstream temperature equals or exceeds the temperature limit for any given day. In these instances, the temperature from the combined discharge from Outfalls 002, 003 and 004 is prohibited from raising the temperature greater than 2°F at the edge of the mixing zone. This provision is only consistent with the temperature criteria for cold water fish. Based on a review of upstream

temperature data presented in Attachment 35 of the wasteload allocation report in Appendix E [of the 2011 Fact Sheet], there is no reasonable potential to exceed the maximum temperature requirements for warm water aquatic communities during the months when temperature criteria for cold water fish are more stringent. Therefore, this provision was retained for those months when the temperature criteria for cold water fish are more stringent.

Compliance with the thermal requirements in the previous permit is determined using a model developed by the facility in 1991 that calculates the temperature rise at the edge of the mixing zone for each outfall. A review of the model is included in the wasteload allocation report in Appendix E [of the 2011 Fact Sheet]. Based on the review, the model may no longer be used to determine compliance with the temperature limits in the permit. Instead, the permit includes a requirement to measure the temperature in Portage-Burns Waterway at the edge of the mixing zone. The thermal mixing zone for Outfalls 002, 003 and 004 is the area in Portage-Burns Waterway extending from Outfall 002 to one-half the width of Portage-Burns Waterway and to a distance of 300 feet downstream of Outfall 004. Temperature measurements shall be taken at the edge of the mixing zone approximately 300 feet downstream of Outfall 004 and at mid-stream.

Instead of measuring the temperature at the edge of the mixing zone, the permittee may choose to submit a new model for review by IDEM as a measure to achieve compliance with the temperature limits in this permit. A reopening clause has been included in this permit to allow review for a proposed thermal model whereby the permit may be reopened to include such a provision for compliance. Any new model must limit the mixing zone to one-half the width of Portage-Burns Waterway and account for: upstream flow and temperature; effluent flow and temperature; and the combined effect of the discharges from Outfalls 002, 003 and 004 on the temperature at the edge of the mixing zone. The permittee has a 24-month schedule of compliance to develop a newly proposed model or install monitoring equipment to comply with the current thermal effluent requirements. Any proposed model should be provided to IDEM at least 90 (ninety) days prior to anticipated use of model for review and must be approved by IDEM before use.

B. NPDES Permit Modification Issued March 19, 2014

The permittee submitted an application to modify its NPDES permit on June 28, 2013 requesting approval to use a thermal model to assess compliance with Outfall 500 temperature requirements as an alternative to measuring the temperature instream.

The following is an excerpt from the Fact Sheet for the NPDES permit modification issued March 19, 2014:

Outfall 500 is the temperature compliance point and is located at the edge of the mixing zone in Burns Waterway, 300 feet downstream of Outfall 004 in the middle of the channel (Buoy A). The thermal model is an alternative to direct, in-situ measurement.

Buoy A is sited at a location frequented by boat traffic and is at risk for removal or damage. Its existence for the duration of the permit cannot be guaranteed and is beyond the control of USS. USS has demonstrated that when Buoy A is removed from Burns Waterway, a

regression model can be used to reliably assess temperature at the compliance point. The regression model (equation) incorporates hourly Outfall 002, 003, 004, and upstream Bums Waterway temperatures and flows currently measured by USS and the coefficients given in the table below. Upstream Bums Waterway flow is expressed as a 24-hour rolling average.

C. NPDES Permit Issued March 30, 2016

This same thermal regression model was included in the renewal permit issued March 30, 2016.

6.4.2 Summary of Temperature Discharge Levels at Outfall 002, 003 and 004

The following tables were prepared using DMR data from December 2017 through November 2020.

Outfall 002

Month	Average Flow (MGD)	Maximum Flow (MGD)	Average Temperature (°F)	Maximum Temperature (°F)
January	0.097	1.2	75	92
February	0.099	0.70	72	89
March	0.15	0.93	78	91
April	0.12	1.1	75	90
May	0.099	0.70	71	90
June	0.099	0.70	75	84
July	0.14	0.72	78	85
August	0.16	0.72	80	85
September	0.14	0.65	80	84
October	0.18	1.1	76	85
November	0.20	1.2	79	95
December	0.10	0.88	75	90

Outfall 003

Month	Average Flow (MGD)	Maximum Flow (MGD)	Average Temperature (°F)	Maximum Temperature (°F)
January	13	15	42	49
February	13	14	41	63
March	13	14	46	53
April	13	15	50	58
May	13	15	58	67
June	13	16	67	77
July	14	16	73	86
August	14	16	78	85
September	14	16	73	84
October	14	16	64	76
November	14	15	53	62
December	13	15	45	54

Outfall 004

Month	Average Flow (MGD)	Maximum Flow (MGD)	Average Temperature (°F)	Maximum Temperature (°F)
January	14	18	59	69
February	14	18	58	68
March	13	18	62	66
April	14	18	66	71
May	14	17	71	74
June	14	18	79	82
July	15	17	84	88
August	15	18	88	98
September	14	18	83	96
October	13	17	78	94
November	12	15	69	88
December	14	18	60	77

6.4.3 Thermal Requirements Proposed in this Permit

As discussed above, the temperature criteria applicable to the Portage-Burns Waterway are located at 327 IAC 2-1.5-8(c)(4) [for warmwater aquatic life] and (d)(2) [for cold water fish]. These criteria are applicable at every point outside of the applicable mixing zone.

The following thermal requirements are proposed in this permit to ensure that the applicable temperature criteria are met:

1. There shall be no rise in the temperature in Portage-Burns Waterway of greater than 2°F, as determined from upstream temperature and downstream temperature at the edge of the mixing zone.
2. The downstream temperature at the edge of the mixing zone shall not exceed the maximum limits in Temperature Limits-Table 1 below during more than one percent (1%) of the hours in the twelve (12) month period ending with any month: at no time shall the downstream temperature at the edge of the mixing zone exceed the maximum limits in Temperature Limits-Table 1 by more than 3°F:

Temperature Limits-Table 1

Maximum Instream Water Temperatures (°F)			
January	February	March	December
50	50	60	57

3. The number of hours where the downstream temperature at the edge of the mixing zone exceeds the maximum limits in Temperature Limits Table 1 and the number of days where the downstream temperature exceeds the maximum limits in Temperature Limits Table 1 by more than 3 °F shall be reported on the state monthly monitoring report and the federal discharge monitoring report.

4. The cumulative number of hours where the downstream temperature at the edge of the mixing zone exceeds the maximum limits in Temperature Limits Table 1 during the most recent twelve (12) months period shall be reported on the state monthly monitoring report and federal discharge monitoring report every month. The most recent twelve (12) months shall include the current month and the previous eleven (11) months.
5. The downstream temperature at the edge of the mixing zone shall not exceed the maximum limits in Temperature Limits Table 2 below at any time:

Temperature Limits-Table 2							
Maximum Instream Water Temperatures (°F)							
April	May	June	July	August	September	October	November
65	65	70	70	70	65	65	65

6. The provisions of paragraph 5 above shall be inapplicable at any time when the upstream temperature is within 2 °F of the maximum limitation for that day.
7. The mixing zone is the area in Portage-Burns Waterway extending laterally from Outfall 002 to one-half the width of Portage-Burns Waterway and to a distance of 300 feet downstream of Outfall 004.
8. In order to verify compliance with the above limitations, the permittee is required to report the following information as Outfall 500:

Parameter	Monthly Average	Daily Maximum	Units	Frequency	Sample Type
Intake Temperature	Report	Report	°F	1 X Hourly	[1]
Upstream River Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 002 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 003 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Outfall 004 Effluent Temperature	Report	Report	°F	1 X Hourly	[1]
Downstream River Temperature [2]	Report	Report	°F	1 X Hourly	[3]
Delta T [4]	-----	Report	°F	1 X Daily	[5]

[1] Monitoring and reporting of temperature is to occur on a continuous basis.

Temperature measurements shall be recorded continuously in one-hour intervals and the highest single recorded hourly measurement shall be reported on the federal discharge monitoring report as the maximum daily temperature of that month.

[2] The following equation shall be used to calculate the downstream river temperature using concurrent hourly temperature and flow measurements:

$$T_d = \alpha * T_u * \frac{Q_u}{Q_t} + \gamma * T_2 * \frac{Q_2}{Q_t} + \delta * T_3 * \frac{Q_3}{Q_t} + \epsilon * T_4 * \frac{Q_4}{Q_t}$$

where:

T_d = hourly downstream temperature
 T_u = hourly river temperature upstream of Outfall 002
 T_2 = hourly Outfall 002 temperature
 T_3 = hourly Outfall 003 temperature
 T_4 = hourly Outfall 004 temperature
 Q_u = the 24-hour rolling average flow in Portage-Burns Waterway measured upstream of Outfall 002 (MGD); this flow shall be calculated on an hourly basis as the average of the current hourly flow measurement and the previous 23 hourly flow measurements
 Q_2 = hourly outfall 002 flow (MGD)
 Q_3 = hourly outfall 003 flow (MGD)
 Q_4 = hourly outfall 004 flow (MGD)
 $Q_t = Q_u + Q_2 + Q_3 + Q_4$
 $\alpha = 1.017$
 $\gamma = 1.443$
 $\delta = 1.177$
 $\epsilon = 0.762$

These coefficients (α , γ , δ , and ϵ) are the coefficients from the June 28, 2013 letter from the permittee and have been approved by IDEM. The coefficients may be updated based upon additional data collection at Buoy A. Any changes shall be submitted for review and approval by IDEM before use by the permittee.

Alternatively, the permittee may measure the downstream temperature, T_d , at the edge of the mixing zone approximately 300 feet downstream of Outfall 004. Temperature measurements shall be taken at mid-stream and at a depth of approximately one meter below the water's surface. An annotation shall be made on the state monthly monitoring report each day this option is used.

[3] Monitoring and reporting of temperature is to occur on a continuous basis. Temperature measurements shall be recorded continuously in one-hour intervals and the total number of hours above the corresponding maximum limits in Part III.A.2 for the twelve (12) months shall be reported. The twelve (12) months shall include the current month and the previous eleven (11) months. The highest single recorded hourly measurement shall be reported on the federal discharge monitoring report as a maximum daily temperature of that month.

[4] This is the difference each day between the maximum upstream and maximum downstream (peak) temperature.

[5] Calculated maximum.

9. The following narrative requirements for temperature shall apply outside the mixing zone:
 - a. There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.
 - b. The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.

6.4.4 Future Temperature Study Requirements

IDEM is not proposing to add any additional study requirements in this permit renewal; however, in the next permit renewal, IDEM may consider adding a requirement that the permittee reevaluate or reconduct its thermal study during its next permit renewal.

6.5 Clean Water Act Section 316(b) Cooling Water Intake Structure(s) (CWIS)

6.5.1 Introduction

In accordance with 40 CFR 401.14, the location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact.

The EPA promulgated a CWA section 316(b) regulation on August 15, 2014, which became effective on October 14, 2014. 79 Fed. Reg. 48300-439 (August 15, 2014). This regulation established application requirements and standards for cooling water intake structures. The regulation is applicable to point sources with a cumulative design intake flow (DIF) greater than 2 MGD where 25% or more of the water withdrawn (using the actual intake flow (AIF)) is used exclusively for cooling purposes. All existing facilities subject to these regulations must submit the information required by 40 CFR 122.21(r)(2)–(r)(8) and facilities with an actual intake flow of greater than 125 MGD must also submit the information required by 40 CFR 122.21(r)(9)–(r)(13). The regulation establishes best technology available standards to reduce impingement and entrainment of aquatic organisms at existing power generation and manufacturing facilities.

Impingement is the process by which fish and other aquatic organisms are trapped and often killed or injured when they are pulled against the cooling water intake structures (CWIS's) outer structure or screens as water is withdrawn from a waterbody. Entrainment is the process by which fish larvae and eggs and other aquatic organisms in the intake flow enter and pass through a CWIS and into a cooling water system, including a condenser or heat exchanger, which often results in the injury or the death of the organisms (see definitions at 40 CFR 125.92(h) and (n)).

The USS Midwest facility withdraws water for their process and cooling water needs through an intake structure located approximately 2800 feet offshore in Lake Michigan.

The USS Midwest Plant has a design intake flow (DIF) of 69.12 MGD. The actual intake flow (AIF), as defined under 40 CFR 125.92(a), is the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous five years. The annual actual intake flows from January 2015 through December 2019 was 27.0 MGD and approximately 30% of the intake water on average is used for cooling purposes.

Therefore, since the facility has a DIF greater than 2 MGD, and because the percentage of flow used at the facility exclusively for cooling is greater than 25%, the facility is required to meet the BTA standards for impingement and entrainment mortality, including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under 40 CFR 125.94(g).

As an existing facility with a DIF greater than 2 MGD and because the AIF is less than or equal to 125 MGD, the permittee was required to submit the application information required by 40 CFR 122.21(r)(2) through (r)(8).

In a letter to IDEM dated October 8, 2018, the permittee, as authorized by 40 CFR 125.95(c), requested permission to reduce the 316(b) application information that was due with the submittal of its 2020 NPDES permit renewal application. IDEM denied this request in an e-mail dated January 29, 2019 and stated, in pertinent part:

“[t]he application does need to comply with 40 CFR 122.21(r). We believe that a new 316(b) application should be submitted with the renewal application. Some or even much of the new application can likely be taken from the previous application.

Even though IDEM denied the permittee’s request for a reduced 316(b) application, the permittee submitted a reduced 316(b) application with its October 1, 2020 permit renewal application. After a review of the 2020 reduced 316(b) application and the 2015 316(b) application which were both included with the permittee’s renewal application, IDEM has determined for this facility, in these circumstances, the application submitted by the permittee was satisfactory for IDEM evaluation of the 316(b) requirements.

The regulation also established requirements that build on existing CWA requirements to coordinate with the U.S. Fish and Wildlife Service prior to issuing NPDES permits. Pursuant to 40 CFR 125.98(h), upon receipt of an NPDES permit 316(b) application for an existing facility subject to the rule, the Director (IDEM) must forward a copy of the permit application to the appropriate Field Office of the U.S. Fish and Wildlife Service for a 60-day review. A copy of this permit application was sent to the Bloomington Field Office of the U.S. Fish and Wildlife Service on October 1, 2020. A response was received from Mr. Daniel W. Sparks of the U.S. Fish and Wildlife Service on December 15, 2020 which is discussed in Section 6.5.5, below.

Much of the factual information presented below was taken, sometimes directly, from the permittee’s October 2020 NPDES Application, primarily Attachment II which addresses the 316(b) application requirements and includes the August 2015 Cooling Water Intake Structure (CWIS) Report. This NPDES application is available from IDEM. After the permit is issued, the 2020 renewal application, including the 2015 CWIS report will be included in IDEM’s virtual filing cabinet with the issued permit.

6.5.2 Facility and Cooling Water Intake Structure (CWIS) Description

A. Detailed Description

The Midwest Plant finishes coils received from other U. S. Steel plants into cold rolled, galvanized, chromium or tin-plated strip and sheet products. The Midwest Plant is authorized to withdraw water for their process and non-contact cooling water needs from one intake. The intake is located approximately 2,800 ft. offshore of the Midwest Plant in the Southern Lake Michigan Basin at a depth of roughly 30 to 35 feet.

The Midwest Pump Station intake is designed with a closed intake conduit that withdraws water from the bottom of Lake Michigan via four intake openings (diameter is approximately

8 feet 8 inches each), which are capped with bars spaced approximately 7 inches apart in a grid pattern. An 84-inch diameter pipe transports water from the openings in Lake Michigan to the Midwest lakeside pump station (LSPS).

See Figures 1420 (A730-0001) and 1421 (A730-0019) shown below which are taken from the 2015 CWIS report.

INDEX OF DRAWINGS

1420 GENERAL LOCATION PLAN & PROFILE OF INTAKE
 1421 DETAILS OF INLET STRUCTURE AND PUMPING AT TRIANGLE POND
 1422 DETAILS OF INLET BAR RACK

GENERAL LOCATION PLAN

LAKE MICHIGAN
 PORTAGE, INDIANA
 INTAKE PIPE
 PUMPING STATION No. 1
 1/4" = 100' HORIZONTAL
 1/4" = 10' VERTICAL
 SCALE IN FEET

PLAN
 SCALE 1" = 100'

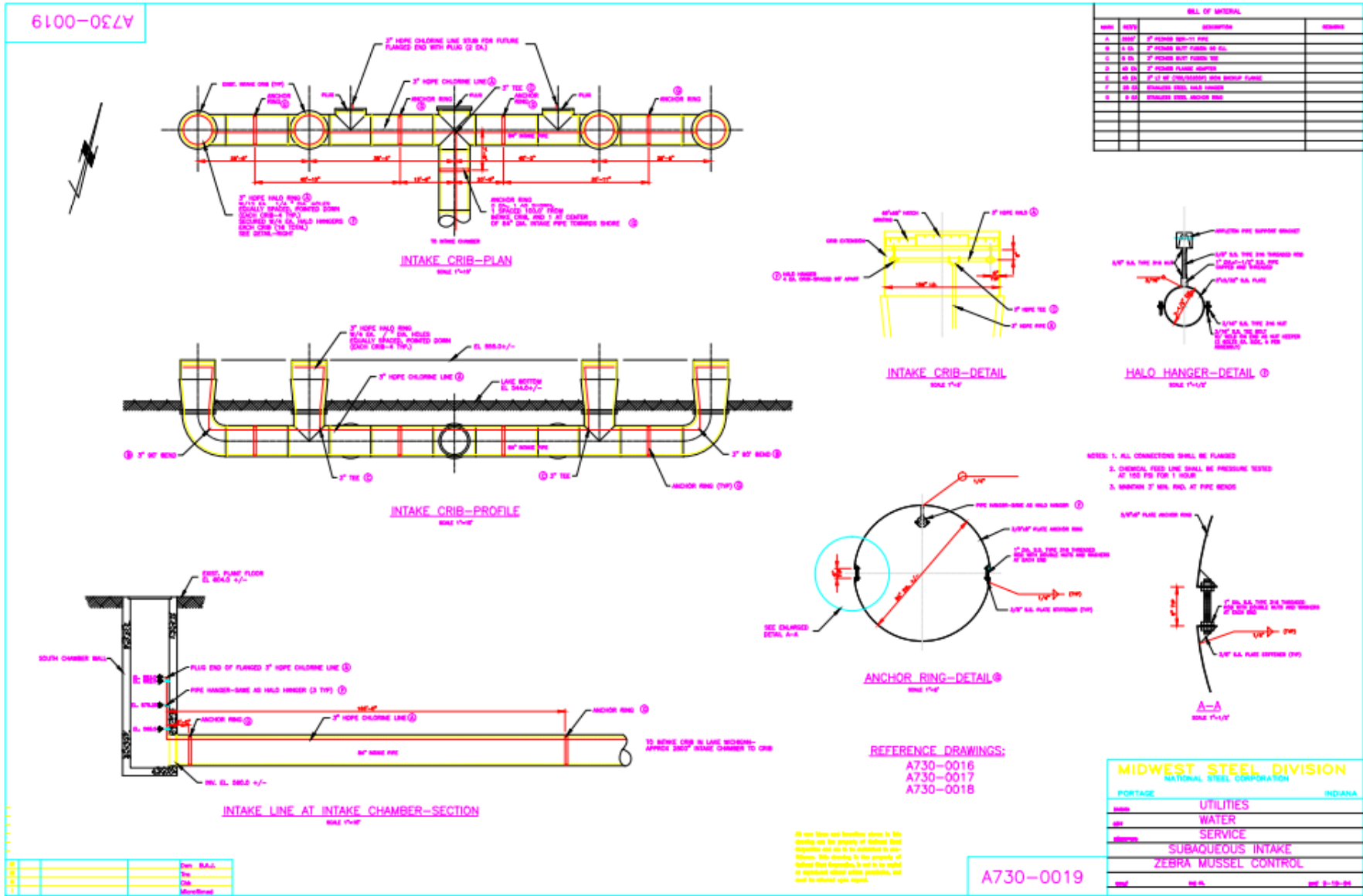
PROFILE
 SCALE 1" = 10'

MIDWEST STEEL CORPORATION
 PORTAGE, INDIANA

SUBAQUEOUS INTAKE
 GENERAL LOCATION
 PLAN & PROFILE OF INTAKE
 1420-1422
 ENGR. SHOP ORDER

1420
A730-0001

Figure 1421 (A730-0019)



The basic infrastructure of the Midwest LSPS includes two wet wells equipped with one vertical traveling screen (1/4-inch mesh) each; four vertical Fairbanks – Morse Deep Well Turbine pumps with a maximum capacity of approximately 12,000 gallons per minute (gpm) or 17.2 million gallons per day (MGD) each; and a distribution manifold to deliver cooling water to all plant areas.

In 1993, USS eliminated and plugged the return conduit for backwash from the traveling screens to discharge to Lake Michigan. The return conduit (previously Outfall 005) was reportedly removed because debris and impinged fish were typically absent and posed no risk to operations of the Midwest LSPS.

Following closure of Outfall 005, operation of the two traveling screens was performed approximately once every 3-6 months to remove accumulated debris. Debris consisted of a few plastic bags, biofilm, and zebra mussel remains that were removed from the trough in the Midwest LSPS after backwash.

Rotation of the traveling screens was found to be unnecessary and eventually stopped in approximately 2006 as debris and impinged fish were typically absent during backwash. Since 2006, the permittee has not operated the traveling screens at the Midwest LSPS because the permittee determined that debris and impinged fish are minimal and do not pose any operational issues. Other than routine maintenance, there has been no repair or replacement of infrastructure at the Midwest LSPS.

Currently, the traveling screens at the Midwest LSPS are nonfunctional. Pump operation over the past 25 years has demonstrated debris and fish impingement do not occur at a significant amount. Therefore, Midwest does not currently have plans to refurbish, repair, or remove the infrastructure of the traveling screens. In addition, Midwest has considered complete removal of the traveling screens. However, due to the condition of the screens, removal activities pose a significant risk to the integrity of pump operations at the Midwest LSPS.

Current maintenance includes annual inspection by divers for integrity and condition status of the intake system and normal preventative maintenance inspections of mechanical pump and water distribution components.

USS has indicated in phone conversation and correspondence with IDEM that the inoperable traveling screens have deteriorated, and portions of screen are likely no longer present. USS also indicated that zebra mussel or debris buildup on the screens is minimal.

Chlorination of the intakes near the openings in Lake Michigan occurs continuously from approximately mid-May to mid-November for zebra mussel control.

B. Intake Flows, Velocity of Intake Flows Through Submerged Intake Openings, Velocity of Intake Flows Through Traveling Screens and Area of Influence

The USS Midwest Plant has a design intake flow (DIF) of 69.12 MGD. The actual intake flow (AIF), as defined under 40 CFR 125.92(a), is the average volume of water withdrawn on an

annual basis by the cooling water intake structures over the previous five years. The annual actual intake flows from January 2015 through December 2019 was 27.0 MGD.

As presented previously, water enters the CWIS at the Lake Michigan offshore intake structure, travels approximately 2800 ft in an 84-inch diameter buried pipe to the onshore wet wells and pumps. The pumps are preceded by the inoperable travelling screens.

The hydrologic zone of influence for the Midwest intake is the area surrounding the intake mouth where intake velocity is in excess of local natural lake circulation or wind induced current velocity, or where intake velocity restricts the ability of fish to swim away. Typically, velocities that are less than 0.5 fps are considered low enough to allow fish to freely swim away. Specific distances of influence from the intake mouth are unknown but expected to be negligible based on the intake volume of water and divers' observations that fish swim freely in and out of the pipe openings. The zone of influence could be variable depending upon seasonal differences and meteorological conditions.

Intake velocities were calculated at the submerged intake openings in Lake Michigan as well as at the inoperable traveling screens in the wet well.

At the design intake flow (DIF) of 69.12 MGD, the intake velocity at the submerged intake openings in Lake Michigan is calculated as 0.53 feet per second (fps). Assuming the traveling screens are in the original configuration and condition, the through screen design intake velocity is calculated to be 0.56 fps at the DIF.

Typical operation is two pumps running continuously and a third pump that starts and stops as needed. This protocol has remained consistent 2007 to present. The CWIS operates continuously on a year-round basis. USS reports a maximum daily flow of 41.3 MGD from 2015 through 2019.

With three of the 17.2 MGD capacity pumps running, the intake flow would be approximately 51.6 MGD. This 51.6 MGD flow is the maximum intake flow that used to calculate the maximum through-screen intake velocity for impingement BTA alternative at 40 CFR 125.94(b)(3). See Section 6.5.6 Best Technology Available (BTA) Determinations below.

At 51.6 MGD, the maximum intake velocity at the submerged intake openings in Lake Michigan is calculated to be approximately 0.39 fps. Assuming the traveling screens are in their original configuration and condition, the maximum actual through screen intake velocity is calculated to be 0.42 fps at the 51.6 MGD maximum intake flow.

At the AIF of 27.0 MGD, the intake velocities at the submerged Lake Michigan openings and traveling screens are calculated as 0.21 fps and 0.22 fps, respectively. This assumes the traveling screens are in their original condition.

At the design intake flow (DIF) of 69.12 MGD, the velocity in the 84-inch diameter pipe that conveys water from the intake structure to the onshore pump stations was calculated by IDEM to be 2.8 fps; at the maximum intake flow of 51.6 MGD this velocity is calculated to be 2.1 fps, and at the AIF of 27.0 MGD, this velocity is calculated to be 1.1 fps.

Based on the above velocity calculations and reported observations by divers, it is likely that fish can freely enter and exit the offshore intake structure. However, once fish enter the 84-inch diameter pipe that conveys water from the intake structure to the pumps, velocities above 1.1 fps and up to 2.1 fps likely entrap and prevent fish from exiting the CWIS.

6.5.3 Source Water Biological Characterization

The intake structure is positioned a distance of approximately 2,800 feet offshore and at a lake depth of approximately 30 feet, and is designed with a closed intake conduit that withdraws water from the bottom of Lake Michigan via four intake openings

The area where the intake structure is located receives minimal commercial boat or ship traffic but is subject to occasional recreational boat activity. Bottom substrates for this portion of the southern shoreline of Lake Michigan consist of sand, the surface of which is unconsolidated and is constantly disrupted by surface wave energy. No critical or significant habitats, such as submerged aquatic vegetation or “sea grass beds,” have been identified in the area of intake structure.

Coastal shoreline fish assemblages in the vicinity of the Midwest Plant and the available habitat in the vicinity of the Midwest CWIS intake crib is limited. Moreover, the distance of the intake crib from the shore likely reduces this area of the lake to planktivorous fish.

6.5.4 Impingement and Entrainment – Aquatic Life Studies

A. Impingement

Studies have been conducted to characterize numbers and species of organisms impinged at USS Midwest and other facilities located in the same proximity as the USS Midwest facility.

Those other facilities include U.S. Steel Gary Works and ArcelorMittal Burns Harbor.

The ArcelorMittal Burns Harbor offshore intake withdraws water from the same general area in Lake Michigan as does USS Midwest.

Yellow perch, round goby, alewife, and spottail shiner were the most frequently impinged fish species at the ArcelorMittal Burns Harbor pump stations, which pull from the offshore intake accounting for 39.8%, 31.3%, 18.9%, and 6.7% of the total impinged fish sample respectively (ENVIRON, 2015).

The USS Gary offshore Lakeside intake is located approximately 20 miles west of the US Midwest intake. At the USS Gary Lakeside Pump Station, the three most abundant species encountered were yellow perch, round goby, and alewife respectively. These three species accounted for 95.7% of the total abundance. Total richness observed at Lakeside Pump Station over the four-year monitoring period was 20 species with peak spawning periods resulting in the greatest abundance in April, June, and November.

At the USS Midwest facility, impingement studies were conducted beginning in 2012 and into 2014. At the USS Midwest facility, species (with the exception of round goby) were not able to be identified.

Results of the USS Midwest, ArcelorMittal Burns Harbor and USS Gary impingement studies are summarized in more detail below.

USS Midwest Impingement Study and Fish Observations During Underwater CWIS Inspections

Impingement Study: A typical fish impingement study involves the collection of fish from the fish return system following physical impingement on travelling screens and subsequent wash-down cycles.

This is not possible at the Midwest CWIS because the travelling screens are not operational, and the fish return system has been blocked since 2006. In place of sampling fish impinged on traveling screens, a dual-frequency Identification Sonar (DIDSON) was used to estimate fish abundance and describe fish behaviors in the cooling water intake structures (CWIS) at the Midwest Plant.

Beginning June 2012 through May 2014, DIDSON data were collected at the Midwest CWIS at multiple locations, depths, and aiming orientations during 21 sample dates. Results demonstrated that DIDSON was effective for detecting and imaging fish within the intake structures. Fish were observed to be present in low numbers in 18 sampling events, and not present during three sampling events (June and September in 2012 and March in 2013). Only small fish (< 25 cm) were observed. Estimated abundance per event of small fish ranged from zero to 53 fish with peak abundance during the November 6, 2012 and November 12, 2013 sample dates.

Temporal expansion of per event estimates to obtain annual estimates indicated the mean annual abundance ranged from about 28,000 fish to about 34,000 fish. It is assumed that fish within the CWIS are considered the equivalent of impinged fish.

DIDSON sampling at the Midwest CWIS demonstrated its effectiveness for assessing distributions of fish in the primary well and pre-well structures. Few fish were observed with DIDSON, which suggests densities of fish are very low in the CWIS. DIDSON data also provided estimates of total length of fish. However, specific behaviors related to structural features of the CWIS could not be effectively assessed due to the low fish densities observed. Given that travelling screens are not installed at the Midwest CWIS, DIDSON provides the only means to estimate the relationship between fish abundance and potential impingement mortality.

The method however is not without limitations; species identification is challenging with DIDSON since many of the species potentially present in the wells have similar body morphologies and swimming behaviors. The only species that could be identified was the round goby (*Neogobius melanostomus*), which is a benthic species that typically moves around in hopping motions. These motions were evident in DIDSON imagery. One round

goby was observed along the bottom of the pre-well during the November 30, 2012 sample event, two individuals of this species were observed along the bottom of the primary well during the April 18, 2013 sample event, and one was observed along the bottom of the primary well during the May 20, 2014 sample event.

Fish Observation from Underwater CWIS Inspections: Underwater video from inspections conducted by Sea Brex Marine Inc. during dives in June/July 2006, April/May 2007, and October 2008 was reviewed specifically to record the number of fish encountered during the inspection. Dives in 2006 and 2007 included the intake chamber and the 2800-foot intake pipe, but not the wet well. The October 2008 dives included the wet well and intake chamber only. The results indicated the following:

June 14, 2006: Pipeline inspection from intake chamber at pumphouse outwards 2000 ft: 34 total fish consisting of 23 live fish 1-3 in. long and 11 dead fish 1-2 in. long. All but 3 fish were gobies.

June 14, 2006: Intake cribs in Lake Michigan inward 1000 ft: 73 total fish consisting of 69 live fish 1-2 in. long. Fish identified included 5 live and 2 dead gobies 1-3 in. long, and one live perch 3 in. long.

July 17 and July 26, 2006: Pumphouse bar rack to intake crib in Lake Michigan: 37 total fish consisting of live fish 1-2 in. long. One fish identified as a goby 1-2 in. long.

April 9, 2007: Pipeline inspection from intake chamber at pumphouse outward 2400 ft: 1 total fish consisting of a dead goby 1-2 in. long.

April 9, 2007: Lake Michigan intake crib inspection: 12 total fish consisting of 11 live fish 1-3 in. long and 1 dead fish 1-2 in. long. Fish identified included 6 live gobies 1-3 in. long and 1 dead goby 1-2 in. long.

May 10-11, 2007: Lake Michigan east and west intake final inspection: 10 total fish consisting of live fish 1-3 in. long. Four fish identified as gobies 1-3 in. long.

October 16, 2008: Intake chamber: 4 total fish consisting of 3 live gobies and 1 dead goby. Wet well: 3 total fish consisting of 2 live gobies and 1 dead goby.

These video count results range from a total of zero to 73 fish depending upon time of inspection and location within the intake system. The video counts of fish demonstrate the variability in fish impingement that can occur over time. It is unknown whether the same fish were encountered more than once, and duplicate counted during the video recording of the inspections presented above. However, the video count in combination with available observational information from U. S. Steel personnel demonstrate that fish within the intake system at Midwest LSPS (at certain locations) can freely swim about. Intake water velocities in the 84-inch diameter conduit that transports water from the Lake Michigan intake to the onshore pump stations, however, likely prevent fish from exiting the intake once inside the pipe.

There are no known documents associated with Midwest or its previous owners prior to 2006 that report fish observations, or provide records of fish impingement, or other reports that indicate operational practices, pump or infrastructure maintenance, or changes in operations were necessary at any time due to fish impingement at Midwest LSPS.

AM Burns Harbor 316(b) Impingement Study

Impingement studies were conducted at the ArcelorMittal Burns Harbor facility (BH) from June 2012 through May 2014. For BH, withdrawal is via two pump stations that withdraw water from Lake Michigan via two intake cribs located approximately 3,600 feet offshore in about 40 feet of water. The DIF for both pump stations is 748.8 MGD.

During the sampling period at the BH pump stations, there were 11 different species impinged (alewife, round goby, yellow perch, smallmouth bass, bluegill, emerald shiner, spottail shiner, gizzard shad, rainbow smelt, burbot, unidentifiable). No species of special concern were impinged at the BH pump stations; however, there was one sport fish species impinged (yellow perch). Yellow perch, round goby, alewife, and spottail shiner were the most frequently impinged fish species at the BH pump stations, accounting for 39.8%, 31.3%, 18.9%, and 6.7% of the total impinged fish sample respectively (ENVIRON, 2015).

USS Gary Impingement Studies

Pursuant to the previous NPDES Permit No. IN0000281 (effective March 1, 2010), U. S. Steel was required to conduct monitoring studies for both impingement and entrainment during the 2nd (2011 - 2012), 3rd (2012 - 2013), 4th (2013 - 2014), and 5th (2014 – 2015) years of the Permit.

Impingement monitoring was required at No. 1 Pump Station, No. 2 Pump Station, and Lakeside Pump Station, while entrainment monitoring was only required at No. 1 Pump Station and Lakeside Pump Station (see entrainment section below).

Studies were abbreviated in 2015 with the agreement of IDEM due to the promulgation of the final federal 316(b) rule which eliminated the need for the final year of monitoring.

At the Lakeside Pump Station which pulls approximately 64. MGD on average from an offshore intake structure, the three most abundant species encountered were yellow perch, round goby, and alewife respectively. These three species accounted for 95.7% of the total abundance. Total richness observed at Lakeside Pump Station over the four-year monitoring period was 20 species with peak spawning periods resulting in the greatest abundance in April, June, and November. More detail available in charts 6, 7, and 8 of the 40 CFR 122.21 (r)(2) – (r)(2) report submitted with the NPDES application.

Charts 6, 7 and 8 from the 40 CFR 122.21 (r)(2) – (r)(8) report submitted with the NPDES application provide estimated annual impingement totals by year and species for PS No 1, PS No 2 and Lakeside Intakes based on the sampling conducted.

B. Entrainment

Entrainment studies have been conducted at USS Midwest as well as several other nearby facilities. The results of those studies indicate that for the volume of water used by these facilities, there were relatively small numbers of organisms entrained by their offshore intakes. Distance of intakes from shore at some intakes and lack of habitat likely contribute to the smaller number of organisms entrained.

Based on the studies from the USS Midwest, USS Gary as well as other nearby Lake Michigan facility studies, it appears that entrainment impacts from operation of the USS Midwest facility are not significant in terms of numbers or species entrained as well as impacts on the nearby ecosystem.

Results of the USS Midwest, USS Gary Works and ArcelorMittal Indiana Harbor East and Burns Harbor entrainment studies are summarized in more detail below.

U.S. Steel Midwest -Entrainment Study

The USS Midwest Plant operates a cooling water intake structure (CWIS) at the Portage facility which is located approximately 2,800 feet offshore at a depth of roughly 30 feet. Intake flows for this pump station average approximately 27 MGD.

Entrainment samples were collected during 32 sample events over a 24-month period from June 2012 to May 2014. Samples were collected every other week during peak spawning months (March – May and October – November) and once a month during February, June – September.

Of the 32 sample events, 28 did not indicate the presence of any ichthyoplankton. A check on entrainment subsampling effectiveness was accomplished by evaluating the presence/absence of zooplankton and mussel veligers in the entrainment samples. Therefore, it is believed that the subsampling system was operating effectively since nonichthyoplankton organisms (zooplankton and mussels) were present in the majority of samples.

Samples that were positive for the presence of ichthyoplankton were June 25, 2012, June 24, 2012, June 17, 2013, and August 19, 2013. Projections of ichthyoplankton per 24-hours ranged from 58 to 1,121. For Sample Events #1 - #16, the annual projection of ichthyoplankton entrained is 15,667, and for Sample Events #17- #32 the projection is 26,900. These projections are a combination of fish eggs and larvae collected, which includes Actinopterygii (class for ray-finned fishes), Gobidae (family for goby) juveniles, *Neogobius melanostomus* (species and genus for Round Goby). Zooplankton (not identified to species) were present during every sample event except June 25, 2012, while the appearance of mussel veligers was more inconsistent. No threatened or endangered species were encountered; nor were there any species on the Indiana Department of Natural Resources list of species of concern collected during sampling.

The results of entrainment sampling and the subsequent data evaluation demonstrate that entrainment of critical fish eggs, larvae, and other valued ichthyoplankton by the Midwest Plant CWIS and equipment is likely negligible. This is likely due to a variety of factors, including the fact that coastal shoreline fish assemblages in the vicinity of the Midwest Plant and the available habitat in the vicinity of the Midwest CWIS intake crib is limited. Moreover, the distance of the intake crib from the shore likely reduces this area of the lake to planktivorous fish. Consequently, the high number of samples with no entrained ichthyoplankton, and the few positive samples dominated by round goby larvae indicate that the impact due to entrainment would be considered negligible (United States Steel Corporation Midwest, 2015).

ArcelorMittal Burns Harbor – Entrainment Studies

2012 -2014 Study: Concurrently with impingement studies, entrainment characterization studies were performed over a two-year period from 2012 to 2014. The BH pump stations withdraw water from Lake Michigan via two intake cribs located approximately 3,600 feet offshore in about 40 feet of water, with a total DIF of 748.8 MGD.

Entrainment samples were collected during 32 sample events over a 24-month period from June 2012 to May 2014. Samples were collected more frequently during peak spawning months (February – May and October – November).

The results of the 32 entrainment sampling events found no fish larvae and/or eggs in over 80 percent of all sampling events at both pump stations. Subsequently, the total daily entrainment estimates of ichthyoplankton varied radically from 0 to 132,000 larvae and/or eggs per day.

Round goby larvae accounted for the majority of fish larvae entrained. The only other identified larvae were alewife from two sampling events at one of the pump stations. Fish eggs accounted for roughly two thirds of all ichthyoplankton entrained, but because they were only identified to the class or family level, no further assessment was possible. However, given the significant numbers of alewife found in the impingement data, it is assumed that the majority of the eggs are associated with alewife (ENVIRON, 2015).

Given the high percentage of samples with no entrained ichthyoplankton, and with most of the positive samples being dominated by round goby larvae, the impact due to entrainment is considered negligible for AMBH.

2019 -2020 Study: AMBH also conducted entrainment studies in 2019 – 2020 as required by the federal 316(b) rule. AMBH concluded that:

“positive samples being comprised solely of demersal spawning Centrarchidae or Percidae eggs, the impact due to entrainment is negligible. Estimated ichthyoplankton entrainment of 7,555 larvae and/or eggs per day at PS1 and 5,375 larvae and/or eggs per day at PS2 are significantly less than those rates found at other facilities in the Great Lakes Basin.”

These more recent studies and conclusions are still under review by IDEM.

ArcelorMittal Indiana Harbor

The IHE has one offshore intake that withdraws water from Lake Michigan via the Main Intake and Pumphouse 2E. The total DIF for the Main Intake is 1152 MGD. During the IHE 2E Pumphouse sampling, entrainment samples were collected monthly or twice monthly over the two-year period per the sampling plan at the 7E and 2E intakes. Sample events spanned periods both with and without chlorination for mussel control. Water volume of entrained samples averaged 122 cubic meters. The results of 32 events found no fish/larvae or eggs in the majority of sampling events. Only one fish, all of the same species, (slimy sculpin) was entrained during the sampling period (Tetra Tech, 2016).

U. S. Steel Gary Works

Pursuant to the NPDES Permit No. IN0000281 (effective March 1, 2010) Part III.C.2(a), U. S. Steel was required to conduct scientifically valid entrainment studies at the Lakeside and #2 Pump Stations in two-year periods following Year 1 of the Permit. Due to logistical constraints, entrainment sampling was conducted at No. 1 Pump Station, rather than No. 2 Pump Station. This change in sampling location was reflected in the study plan submitted to IDEM.

Entrainment characterization studies were conducted in the second half of 2011, 2012, 2013, and 2014 at the U. S. Steel Gary Works site, but were suspended in 2015 following a March 24, 2015 email from the Indiana Department of Environmental Management, stating that sampling could be stopped.

Entrainment sample analysis focused on identification to the lowest practical taxonomic classification and enumeration of fish larvae/juveniles, fish eggs, mussel veligers, and immature mussels. Invertebrate forms of plankton that were noted included bivalve veligers and copepods as either present or absent.

Ichthyoplankton were fairly rare (although invertebrate forms were observed in most samples). A certain degree of seasonality was observed during entrainment sampling. Ichthyoplankton, when encountered, were typically identified as present during the spring and summer months. Entrainment typically occurred in June, July, and August at both No. 1 Pump Station and Lakeside Pump Station.

Raw data, daily entrainment estimates, and annualized totals are shown for each pump station in Tables 2 through 10 in the NPDES Permit Application 40 CFR 122.21 (r)(9) – (r)(12) report.

The annualized entrainment estimate for the facility by species and life stage is shown in Table 11 in the NPDES Permit Application 40 CFR 122.21 (r)(9) – (r)(12) report. Table 12, from the same report, reflects the same information as shown in Table 11, but has been adjusted to remove the identified nuisance species (i.e., Round Goby). Table 10 from the same report provides same data but for Lakeside Intake only.

6.5.5 Protected Species Susceptible to Impingement and Entrainment

The federal regulation requires that facilities identify all federally listed threatened and endangered species and designated critical habitat that are present in the “action area.” The “action area,” as defined by the USFWS and NMFS under Section 7, includes all areas that may be directly or indirectly affected by the operation of a facility’s CWIS and not merely the immediate area involved in the action; this is because the USFWS and NMFS consider that the effects of CWIS can extend well beyond the footprint of the CWIS.

There are no known federally listed threatened or endangered (T&E) aquatic species in the vicinity of the intakes that may be susceptible to impingement and entrainment.

However, Lake Sturgeon (*Acipenser fulvescens*) is listed as a state Endangered Species and is identified on IDNR’s Wildlife Action Plan. One tagged adult Lake Sturgeon was found during the 2011 316(a) Demonstration conducted by the BP Whiting refinery, although it was not at a location in the vicinity of the Whiting Refinery Intakes. It is possible, however, based on habitat preferences of Lake Sturgeon that they could be found near the BP or USS CWIS Intakes. In addition, Troutperch (*Percopsis omiscomaycus*) and Slimy Sculpin (*Cottus cognatus*), both being State Species of Concern, have been identified in 316(b) impingement studies in the area.

IDEM received the following comment on the permittee’s 316(b) application from the U.S. Fish and Wildlife Service, Bloomington Field Office on December 15, 2020:

[T]here are no endangered species / CWIS issues with this permit.

6.5.6 Best Technology Available (BTA) Determinations

A. Impingement BTA

Under 40 CFR 125.94(c) existing facilities subject to the rule must comply with one of the following seven BTA Standards for Impingement Mortality:

1. Operate a closed-cycle recirculating system as defined at 40 CFR §125.92;
2. Operate a CWIS that has a maximum design through-screen design intake velocity of 0.5 fps;
3. Operate a CWIS that has a maximum actual through-screen intake velocity of 0.5 fps;
4. Operate an offshore velocity cap that is a minimum of 800 feet offshore;
5. Operate a modified traveling screen that the Director (IDEM) determines meets the definition of the rule (at §125.92(s)) and that the Director (IDEM) determines is BTA for impingement reduction;
6. Operate any other combination of technologies, management practices, and operational measures that the Director (IDEM) determines is BTA for impingement reduction; or
7. Achieve the specified impingement mortality performance standard of less than 24 percent.

The permittee has proposed to comply with alternative 3, above. Under this alternative, the permittee must operate a cooling water intake structure that has a maximum through-screen intake velocity of 0.5 feet per second. The owner or operator of the facility must submit information to IDEM that demonstrates that the maximum intake velocity as water passes through the structural components of a screen measured perpendicular to the screen mesh does not exceed 0.5 feet per second. The maximum velocity must be achieved under all conditions, including during minimum ambient source water surface elevations (based on best professional judgment using hydrological data) and during periods of maximum head loss across the screens or other devices during normal operation of the intake structure. IDEM may authorize the owner or operator of the facility to exceed the 0.5 fps velocity at an intake for brief periods for the purpose of maintaining the cooling water intake system, such as backwashing the screen face. If the intake does not have a screen, the maximum intake velocity perpendicular to the opening of the intake must not exceed 0.5 feet per second during minimum ambient source water surface elevations. In addition, the permittee must monitor the velocity at the screen at a minimum frequency of daily. In lieu of velocity monitoring at the screen face, the permittee may calculate the through-screen velocity using water flow, water depth, and the screen open areas. The permit will specify the permittee's selected compliance method for this alternative (monitor velocity or calculate velocity).

As discussed in previously in Section 6.5.2 Facility and Cooling Water Intake Structure (CWIS) Description, at the maximum daily operating flow of 51.6 MGD, the intake velocity at the submerged intake openings in Lake Michigan is calculated at 0.39 fps. Assuming the traveling screens are in their original configuration and condition, the maximum actual through screen velocity is calculated to be 0.42 fps (this was calculated using the intake flow of 51.6 MGD).

IDEM concurs with the permittee that it operates a cooling water intake structure that has a maximum actual through screen intake velocity of 0.5 fps and is in compliance with best technology available (BTA) alternative 3 for impingement mortality.

B. Entrainment BTA

For existing facilities, EPA did not identify any single technology or group of technology controls as available and feasible for establishing national performance standards for entrainment. Instead, EPA's regulations require the permitting agency to make a site-specific determination of the best technology available standard for entrainment for each individual facility. See 40 CFR 125.94(d).

EPA's regulations put in place a framework for establishing entrainment requirements on a site-specific basis, including the factors that must be considered in the determination of the appropriate entrainment controls. These factors include the number of organisms entrained, emissions changes, land availability, and remaining useful plant life as well as social benefits and costs of available technologies when such information is of sufficient rigor to make a decision. These required factors are listed under 40 CFR 125.98(f)(2).

EPA's regulations also establish factors that may be considered when establishing site-specific entrainment BTA requirements, including entrainment impacts on the waterbody,

thermal discharge impacts, credit for flow reductions associated with unit retirements, impacts on reliability of energy delivery, impacts on water consumption, and availability of alternative sources of water. (40 CFR 125.98(f)(3))

After considering all the factors that must and may be considered by the federal rules, see discussion below, IDEM finds that the existing facility meets BTA for entrainment.

Must and May Factor Discussion (40 CFR 125.98(f)(2) and (3))

1. MUST FACTORS (40 CFR 125.98(f)(2))

- i. Numbers and types of organisms entrained, including, specifically, the numbers and species (or lowest taxonomic classification possible) of Federally listed, threatened and endangered species, and designated critical habitat (e.g., prey base);*

The results of entrainment sampling and the subsequent data evaluation at USS Midwest and other nearby industrial facilities demonstrate that entrainment of critical fish eggs, larvae, and other valued ichthyoplankton by the Midwest Plant CWIS and equipment is likely negligible.

This is likely due to a variety of factors, including the fact that coastal shoreline fish assemblages in the vicinity of the Midwest Plant and the available habitat in the vicinity of the Midwest CWIS intake crib is limited. Moreover, the distance of the intake crib from the shore likely reduces this area of the lake to planktivorous fish. Consequently, the high number of samples with no entrained ichthyoplankton, and the few positive samples dominated by round goby larvae indicate that the impact due to entrainment would be considered negligible (United States Steel Corporation Midwest, 2015).

There are no known Federally listed threatened or endangered (T&E) aquatic species near the intakes that may be susceptible to impingement and entrainment. In addition, there is no Federally listed designated critical habitat in the vicinity of the intakes. A state-listed endangered species, lake sturgeon (*Acipenser fulvescens*) is listed for Lake County, Indiana and is identified on IDNR's Wildlife Action Plan. One tagged adult lake sturgeon was found during the field work in 2011 in support of a 316(a) Demonstration, however it was not at a location near the USS Midwest intakes.

In addition to lower withdrawal rates relative to other users in the area, the USS Midwest intake is located approximately 2800 feet offshore and submerged roughly 30 to 35 feet below the surface. Submerged, offshore intakes withdraw water from less biologically productive areas to reduce impingement and entrainment.

Intakes designed in this manner, specifically in the southern basin of Lake Michigan, exhibit a lower density of organisms as well as modify the species found

as a function of the distance from the shoreline and depth in water column. Intakes at an offshore submerged location typically result in a larger proportion of round goby in the fish impacted than near shore intakes.

IDEM agrees with USS Midwest that the entrainment impacts are expected to be negligible given the location of the intake openings in Lake Michigan, a lower withdrawal rate compared to other representative facilities and the low rates of entrainment observed at USS Midwest and in those other facility studies.

ii. Impact of changes in particulate emissions or other pollutants associated with entrainment technologies;

The installation of additional cooling towers would be expected to result in:

- Significant increases in particulate emissions (e.g., PM, PM-10, and PM-2.5) from the cooling towers drift;
- Significant increases in carbon dioxide (CO₂) and other criteria air pollutants from the increase in energy required to operate the cooling towers;
- A potential increase of mists, fog, and icing from the cooling towers evaporation plumes impacting facility safety;
- Impacts to nearby vegetation/structures from drift corrosion; and
- An increase in the total dissolved solids (TDS) loading to Lake Michigan due to concentrating pollutants in cooling tower cycles and use of water treatment additives to control corrosion.

iii. Land availability insofar as it relates to the feasibility of entrainment technology;

The following is taken from the 2020 NPDES Permit application:

The installation of cooling towers would result in a significant impact to land availability on the USS MW Plant footprint. The land availability is limited given the USS MW Plant proximity to heavily populated industrial and residential areas. The installation of cooling towers within the USS MW Plant's process areas would be complex given the existing limited available space and the need for an additional area that can be used for buffer. The buffer area is required due to safety concerns from the increased potential for mists, fog, and icing (see response to Section 9.2 above).

iv. Remaining useful plant life; and

USS Midwest has operated at this location since the early 1900s and plans to continue operations for the foreseeable future.

v. Quantified and qualitative social benefits and costs of available entrainment technologies when such information on both benefits and costs is of sufficient rigor to make a decision.

USS Midwest has not performed any detailed evaluation of quantified and qualitative social benefits and costs of available entrainment technologies such as cooling towers, wedgewire screen intakes or fine mesh screens.

However, it is anticipated that the installation of these technologies would result in minimal further reductions in entrainment rates, given the predicted low rates of entrainment at USS Midwest and based on a review of entrainment characterization data from representative nearby Lake Michigan intakes (see above).

2. MAY FACTORS (40 CFR 125.98(f)(3))

i. Entrainment impacts on the waterbody;

As discussed above, the entrainment impacts on Lake Michigan from operation of the USS Midwest intakes are expected to be negligible.

ii. Thermal discharge impacts;

Installation of cooling towers would significantly reduce the thermal load discharged by USS Midwest to the Burns Waterway.

The benefit of such a reduction is not clear given the modeling studies showing that the current thermal discharge is in compliance with applicable NPDES permit limits that address both in-stream criteria and a rise in temperature above upstream values. That said, any reduction in thermal load would likely benefit fish passage.

iv. Impacts on the reliability of energy delivery within the immediate area;

The impact of cooling towers or other entrainment control technologies on energy reliability is unknown.

v. Impacts on water consumption; and

The installation of cooling towers would possibly result in an increase in net water consumption, due to the increase in consumptive use from cooling tower evaporation

vi. Availability of process water, gray water, wastewater, reclaimed water, or other waters of appropriate quantity; and, quality for reuse as cooling water

The USS Midwest facility has limited options for available process, gray, waste, or reclaimed water in appropriate quantity and/or appropriate quality that could be used for reuse of the total volume of cooling water.

vii. Credit for flow reductions associated with unit retirements;

USS Midwest states that they continually evaluate water optimization projects but has not retired units that would impact water consumption within the last ten years preceding October 14, 2014.

6.5.7 Best Technology Available (BTA) Impingement and Entrainment Determination Summary

IDEM concurs with the permittee that it operates a CWIS that has a maximum actual through screen intake velocity of 0.5 fps and the existing CWIS is in compliance with best technology available (BTA) alternative 3 for impingement mortality.

IDEM has also determined that the existing facility and CWIS meets BTA for entrainment. Primary in this entrainment BTA determination is the relatively small numbers of organisms likely entrained which is primarily due to the intake location 2800 feet offshore.

6.5.8 Permit Conditions

The permittee shall comply with requirements below:

1. In accordance with 40 CFR 125.98(b)(1), nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.
2. The permittee must at all times properly operate and maintain the cooling water intake structure and associated intake equipment.
3. The permittee must inform IDEM of any proposed changes to the CWIS or proposed changes to operations at the facility that affect the information taken into account in the current BTA evaluation.
4. At a minimum frequency of daily, the permittee must calculate the through-screen velocity at both the off-shore intake and at the inoperable traveling screens using water flow, water depth, and the screen/intake open areas. These velocities and factors used in the calculation shall be reported on the MMR and DMR as Outfall 600, as follows (it is assumed that the open area of the off-shore intake will remain 202.75 square feet for the life of this permit. The permittee is required to notify IDEM if it does change):

Parameter	Monthly Average	Daily Maximum	Units	Frequency
Velocity, Off-shore Intake	-----	Report	Feet/second	Daily
Velocity; Traveling Screens	-----	0.5	Feet/second	Daily
Intake Flow	-----	Report	MGD	Daily
Water Depth; Traveling Screens	-----	Report	Feet	Daily
Open Area, Traveling Screens	-----	Report	Square feet	Daily

5. The permittee must either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation as required by 40 CFR 125.96(e). The permittee must conduct such inspections at least weekly to ensure that any technologies operated to comply with 40 CFR 125.94 are maintained and operated to function as designed including those installed to protect Federally listed threatened or endangered species or designated critical habitat. Alternative procedures can be approved if this requirement is not feasible (e.g., an offshore intake, velocity cap, or during periods of inclement weather).
6. In accordance with 40 CFR 125.97(c), by January 31 of each year, the permittee must submit to the Industrial NPDES Permit Section IDEM-OWQ an annual certification statement for the preceding calendar year signed by the responsible corporate officer as defined in 40 CFR 122.22 (see 327 IAC 5-2-22) subject to the following:
 - a. If the information contained in the previous year's annual certification is still pertinent, you may simply state as such in a letter to IDEM and the letter, along with any applicable data submission requirements specified in this section shall constitute the annual certification.
 - b. If you have substantially modified operation of any unit at your facility that impacts cooling water withdrawals or operation of your cooling water intake structures, you must provide a summary of those changes in the report. In addition, you must submit revisions to the information required at 40 CFR 122.21(r) in your next permit application.
7. Best technology available (BTA) determinations for entrainment mortality and impingement mortality at cooling water intake structures will be made in each permit reissuance in accordance with 40 CFR 125.90-98. The permittee must submit all the information required by the applicable provisions of 40 CFR 122.21(r)(2) through (r)(8) with the next renewal application. Since the permittee has submitted the studies required by 40 CFR 122.21(r), the permittee may, in subsequent renewal applications pursuant to 40 CFR 125.95(c), request to reduce the information required if conditions at the facility and in the waterbody remain substantially unchanged since the previous application so long as the relevant previously submitted information remains representative of the current source water, intake structure, cooling water system, and operating conditions. Any habitat designated as critical or species listed as threatened or endangered after issuance of the current permit whose range of habitat or designated critical habitat includes waters where a facility intake is located constitutes potential for a substantial change that must be addressed by the owner/operator in subsequent permit applications, unless the facility received an exemption pursuant to 16 U.S.C. 1536(o) or a permit pursuant to 16 U.S.C. 1539(a) or there is no reasonable expectation of take. The permittee must submit the request for reduced cooling water intake structure and waterbody application information at least **two years and six months** prior to the expiration of the NPDES permit. The request must identify each element in this subsection that it determines has not substantially changed since the previous permit application and the basis for the determination. IDEM has the discretion to accept or reject any part of the request.

8. The permittee shall submit and maintain all the information required by the applicable provisions of 40 CFR 125.97.
9. All required reports must be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

6.6 Streamlined Mercury Variance (SMV)

Based on a Reasonable Potential Analysis performed on February 12, 2021, it was determined that the Projected Effluent Quality (PEQ) was greater than the Projected Effluent Limitations (PEL) for mercury discharged from Outfall(s) 004. Therefore, water quality based effluent limitations were required and included in the permit. In anticipation of not being able to meet the final limitations for mercury, the permittee applied for a Streamlined Mercury Variance (SMV) on February 5, 2021. The SMV application was deemed complete on February 8, 2021. The SMV has been incorporated into this permit renewal and applies to the discharge from Outfall 004.

The SMV establishes a streamlined process for obtaining a variance from a water quality criterion used to establish a WQBEL for mercury in an NPDES permit. The goal of the SMV is to reduce the effluent levels of mercury towards, and achieve as soon as practicable, compliance with the mercury WQBELs through implementation of a pollutant minimization program plan (PMPP). The SMV will remain in effect until the permit expires under IC 13-14-8-9. Pursuant to IC 13-14-8-9(e), when the SMV is incorporated into a permit extended under IC 13-15-3-6 (administratively extended), the SMV will remain in effect as long as the NPDES permit requirements affected by the SMV are in effect.

Mercury Interim Discharge Limit

The permit includes an interim discharge limit for mercury of 18 ng/l. Compliance with the interim discharge limit will be achieved when the average of the measured effluent daily values over the rolling twelve-month period is less than the interim limit. Each reporting period, the permittee shall report a daily maximum value. After the first year of the permit term, the permittee will also report the annual average value.

The interim discharge limit was developed in accordance with 327 IAC 5-3.5-7 and with 327 IAC 5-3.5-8. Specifically, the interim discharge limit shall be based upon available, valid, and representative data of the effluent mercury levels collected and analyzed over the most recent two (2) year period from the facility. The interim limit of 18 ng/l represents the highest daily value for mercury from the most recent two (2) years of the permittee's effluent data. This Office received a complete SMV application on February 5, 2021. Therefore, mercury data two (2) years prior to February 5, 2021 were utilized in determining the mercury interim discharge limit.

The SMV establishes a streamlined process for obtaining a variance from a water quality criterion used to establish a WQBEL for mercury in an NPDES permit. The goal of the SMV is to reduce the effluent levels of mercury towards, and achieve as soon as practicable, compliance with the mercury WQBELs through implementation of a pollutant minimization

program plan (PMPP). The SMV renewal will remain in effect until the permit expires under IC 13-14-8-9. Pursuant to IC 13-14-8-9(e), when the SMV renewal is incorporated into a permit extended under IC 13-15-3-6 (administratively extended), the renewal will remain in effect until the permit expires.

Pollutant Minimization Program Plan (PMPP)

PMPP requirements are outlined in 327 IAC 5-3.5-9 and are included in Part V of the NPDES permit in accordance with 327 IAC 5-3.5-6. The PMPP focuses on pollution prevention and source control measures to achieve mercury reduction in the effluent. The PMPP was public noticed prior to submittal to IDEM in accordance with 327 IAC 5-3.5-9(c). No comments were received during the public notice period. The goal of the PMPP is to reduce the effluent levels of mercury towards, and achieve as soon as practicable, compliance with the mercury WQBELs established for the permitted facility.

SMV Annual Reports

The permittee is required to submit annual reports to IDEM by August 1 of each year in which the SMV is in effect. The annual report must describe the SMV applicant's progress toward fulfilling each PMPP requirement, the results of all mercury monitoring within the previous year, and the steps taken to implement the planned activities outlined under the PMPP.

6.7 Spill Response and Reporting Requirement

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.(d), Part II.B.3.(c), and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedances that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedance to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

6.8 Permit Processing/Public Comment

Pursuant to IC 13-15-5-1, IDEM will publish the draft permit document online at <https://www.in.gov/idem/5474.htm>. Additional information on public participation can be found in the "Citizens' Guide to IDEM", available at <https://www.in.gov/idem/6900.htm>. A 45-day comment period is available to solicit input from interested parties, including the public. A general notice will also be published in the newspaper with the largest general circulation within Porter County.

Attachment A
Waste Load Allocation (WLA) report (WLA002530)

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: February 12, 2021

To: Jennifer Elliot
Industrial NPDES Permits Section
Section

Thru: Nicole Gardner, Chief
Industrial NPDES Permits

John Elliott, Reviewer

From: Jennifer Elliot
Industrial NPDES Permits Section

Subject: Wasteload Allocation Report for U.S. Steel – Midwest Plant in Porter
County
(IN0000337, WLA002530)

Water quality-based effluent limitations (WQBELs) were calculated for multiple pollutants and a reasonable potential analysis for free cyanide, formaldehyde, mercury and whole effluent toxicity (WET) was conducted for the renewal of the NPDES permit for U.S. Steel – Midwest Plant. The analysis was done for Outfall 004, which discharges to the Portage-Burns Waterway, a tributary to the Indiana portion of the open waters of Lake Michigan. Therefore, the discharge is covered under the rules for the Great Lakes system. The effluent flow for Outfall 004 used in this analysis was 17 MGD.

The Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. The Indiana

portion of the open waters of Lake Michigan is classified as an outstanding state resource water (OSRW) in 327 IAC 2-1.5-19(b)(2).

The 2018 assessment unit for the Portage-Burns Waterway is INC0159_02. This assessment unit is on the 2018 303(d) list for PCBs in fish tissue. A TMDL for *E. coli* for the Portage-Burns Waterway was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. The TMDL requires load reductions from nonpoint sources, but not from point source discharges. The TMDL does not require permit limits for *E. coli* for Outfall 004. A TMDL for *E. coli* for the Lake Michigan shoreline was approved by U.S. EPA on September 30, 2004 and is part of the Lake Michigan Shoreline TMDL.

The calculation of the monthly average and daily maximum projected effluent quality (PEQ) for individual toxic pollutants is included in Table 1. The results of the reasonable potential statistical procedure are included in Table 2. The results show that WQBELs are not required for free cyanide, but they are required for mercury and formaldehyde.

The WQBELs for mercury and formaldehyde calculated for Outfall 004 are included in Table 3. This table also includes WQBELs for the pollutants regulated by Federal Effluent Limitation Guidelines (ELGs) at internal Outfall 304. The WQBELs for the ELG parameters are being provided for comparison to applicable technology-based effluent limitations. Free cyanide is also included in Table 3, even though reasonable potential was not demonstrated, for comparison to the existing WQBELs.

A reasonable potential analysis for Outfall 004, for WET, was done in accordance with the Federal Great Lakes Guidance in 40 CFR Part 132. U.S. EPA overpromulgated Indiana's reasonable potential procedure for WET in 327 IAC 5-2-11.5(c)(1) and Indiana is now required to apply specific portions of the Federal Great Lakes Guidance when conducting reasonable potential analyses for WET. Indiana's requirements are included under 40 CFR Part 132.6. The results of the reasonable potential analysis for WET show that the discharge from Outfall 004 has a reasonable potential to exceed the numeric interpretation of the narrative criterion for acute and chronic WET. Therefore, WQBELs are required for WET.

Once a determination is made that WQBELs are required for WET, the WQBELs are established in accordance with 327 IAC 5-2-11.6(d). This provision allows a case-by-case determination of whether to establish a WQBEL for only acute or chronic WET, or WQBELs for both acute and chronic WET, the number of species required for testing and the species required for testing. The purpose of the WLA report is to provide the numerical limits. The numerical limits for acute and chronic WET are included in Table 3. The documentation of the wasteload allocation analysis is included as an attachment.

Documentation of Wasteload Allocation Analysis For Discharges to the Great Lakes System

Analysis By: Jennifer Elliot

Date: February 12, 2021

Reviewed By: John Elliott

WLA Number: 002530

Facility Information

- **Name:** U.S. Steel – Midwest Plant
- **NPDES Permit Number:** IN0000337
- **Permit Expiration Date:** March 31, 2021
- **County:** Porter
- **Purpose of Analysis:** Recalculate WQBELs for permit renewal using updated flow and conduct reasonable potential analysis for free cyanide, formaldehyde, mercury and WET.
- **Outfall:** 004
- **Facility Operations:** Operations contributing to Outfall 004 include noncontact cooling water, stormwater and wastewater from internal Outfall 304, which includes process wastewater from internal Outfalls 104 and 204.
- **Applicable Effluent Guidelines:** 40 CFR 420.92 – Acid Pickling (TSS, oil & grease, lead and zinc), 40 CFR 420.102 – Cold Forming (TSS, oil & grease, lead, zinc, naphthalene and tetrachloroethylene), 40 CFR 420.112 and 420.114 – Alkaline Cleaning (TSS and oil & grease), 40 CFR 420.122 and 420.124 – Hot Coating (TSS, oil & grease, lead, zinc and hexavalent chromium) and 40 CFR 433.14 – Metal Finishing (cadmium, total chromium, copper, lead, nickel, silver, zinc, total cyanide and TTO)
- **Current Permitted Flow:** 19 MGD
- **Type of Treatment:** None besides the treatment for internal Outfalls 104 and 204.
- **Effluent Flow for WLA Analysis:** 17 MGD (The highest monthly average flow from August 2018 through July 2020 and occurred during August 2018.)
- **Current Effluent Limits:**

Parameter	Monthly Average		Daily Maximum		Measurement Frequency
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)	
Total Residual Chlorine	0.01	1.3	0.02	3.1	Daily
Silver	0.000076	0.012	0.00013	0.021	2 x Monthly
Free Cyanide	0.0075	1.2	0.013	2.1	2 x Monthly
Cadmium	0.0077	1.2	0.013	2.1	2 x Monthly
Copper	0.030	4.7	0.052	8.2	2 x Monthly
Nickel	0.21	33.3	0.36	57.1	2 x Monthly
Lead	0.038	6.0	0.066	10.5	2 x Monthly
Acute WET (TUa) [1]	--	--	Report	--	Quarterly
Chronic WET (TUc) [2]	Report	--	--	--	Quarterly

[1] An acute toxicity reduction evaluation trigger of 1.0 TUa applies to the discharge.

[2] A chronic toxicity reduction evaluation trigger of 1.9 TUc applies to the discharge.

Pollutants of Concern for WLA Analysis

Pollutants of Concern and Type of WLA Analysis		
Parameter	Type of Analysis	Reason for Inclusion on Pollutants of Concern List
Fluoride	WQBEL	Limited at internal Outfall 304
Cadmium, Hexavalent Chromium, Total Chromium, Copper, Total Cyanide, Lead, Nickel, Silver, Zinc, Naphthalene and Tetrachloroethylene	WQBEL	Federal effluent limitation guidelines apply at internal Outfall 304
Free Cyanide	WQBEL	Limited in current permit and Federal effluent limitation guideline for total cyanide applies at internal Outfall 304
Mercury	RPE	Monitored in current permit.
Formaldehyde	RPE	Form 2C data showed elevated levels
Whole Effluent Toxicity	RPE	Monitored in current permit

Receiving Stream Information

- **Receiving Stream:** Outfall 004 discharges to the Portage-Burns Waterway, about 0.06 miles upstream of the Indiana portion of the open waters of Lake Michigan (See Attachment 1)
- **Drainage Basin:** Lake Michigan
- **Drinking Water Intakes Downstream:** None on Portage-Burns Waterway. There are several public water system intakes in Lake Michigan, but none will impact this analysis.
- **Designated Stream Use:** Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. Therefore, Portage-Burns Waterway is designated as a salmonid water. The Indiana portion of the open waters of Lake Michigan is designated for full-body contact recreation; shall be capable of supporting a well-balanced warm water aquatic community; is designated as salmonid waters and shall be capable of supporting a salmonid fishery; is designated as a public water supply; and is designated as an industrial water supply.
- **Stream Classification:** The Indiana portion of the open waters of Lake Michigan is classified in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW).
- **12 Digit HUC:** 040400010509
- **Assessment Unit (2018):** INC0159_02 (Portage-Burns Waterway) and INC0163_G1074 (Lake Michigan Shoreline) and INC0163_G1093 (Lake Michigan Shoreline)
- **303(d) List:** The Portage-Burns Waterway (assessment unit INC0159_02) is on the 2018 303(d) list for PCBs in fish tissue. The Lake Michigan Shoreline is on the 2018 303(d) list for mercury in fish tissue and PCBs in fish tissue.
- **TMDL Status:** A TMDL for *E. coli* for Portage-Burns Waterway was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. A TMDL for *E. coli* for the Lake Michigan shoreline was approved by U.S. EPA on September 30, 2004 and is part of the Lake Michigan Shoreline TMDL.
- **Q7,10 (upstream of facility):** 100 cfs (65 mgd) (USGS gaging station 04095090 Burns Ditch at Portage is on Portage-Burns Waterway at the bridge upstream of Outfall 002. The drainage area at this gage is 331 mi², the Q7,10 is 100 cfs, the Q1,10 is 84 cfs, and the harmonic mean flow is 384 cfs. The drainage area and stream design flows were obtained from the book Low-Flow Characteristics for Selected Streams in Indiana by Kathleen K. Fowler and John T. Wilson, published in 2015 by the USGS.)
- **Q1,10 (upstream of facility):** 84 cfs (54 mgd)
- **Q90,10 (upstream of facility):** 206 cfs (133 mgd) (the determination of this value is documented in the January 20, 2016 WLA report)
- **Harmonic Mean Flow (upstream of facility):** 384 cfs (248 mgd)
- **Nearby Dischargers:** There are several dischargers to tributaries of Portage-Burns Waterway upstream of this facility. The Chesterton WWTP (IN0022578), Praxair (IN0043435) and ArcelorMittal Burns Harbor (IN0000175) discharge to East Branch Little Calumet River. The Valparaiso WWTP (IN0024660) and South Haven WWTP

(IN0030651) discharge to Salt Creek and several sanitary WWTPs discharge to tributaries of Salt Creek. The Portage WWTP (IN0024368) discharges to Burns Ditch. Only ArcelorMittal, Valparaiso and Portage currently have monitoring data available for metals. All these dischargers contribute to the background concentrations upstream of U.S. Steel - Midwest. However, only the ArcelorMittal and Portage discharges were specifically considered in the WLA analysis because of the availability of data and their close proximity to U.S. Steel - Midwest.

Calculation of Preliminary Effluent Limitations

The representative background concentration of a pollutant for use in developing wasteload allocations is determined in accordance with 327 IAC 5-2-11.4(a)(8). According to this provision, best professional judgment is to be used to select the one data set that most accurately reflects or estimates background concentrations when data in more than one of the following data sets exist:

- (A) Acceptable available water column data.
- (B) Water column concentrations estimated through use of acceptable available caged or resident fish tissue data.
- (C) Water column concentrations estimated through use of acceptable available or projected pollutant loading data.

The background concentration is calculated as the geometric mean of the selected data set. In the case of U.S. Steel - Midwest, instream data are available from fixed water quality monitoring station BD 1 Burns Ditch at Portage. This station is located at the U.S. Highway 12 Bridge upstream of Outfall 002. Water quality data from fixed station BD 1 were obtained for the period August 2015 through July 2020. Instream data for all of the pollutants of concern are not available from fixed station BD 1 so data were obtained from nearby waterbodies. The Surveys Section conducted quarterly trace metals sampling in Deep River downstream of the Lake George Dam during the period from 2002 through 2006. The data from the trace metals sampling were used for several pollutants that are not monitored at the fixed station and for cadmium and silver which were reported as non-detect at the fixed station. Water quality data were obtained from the Surveys Section database. The time periods chosen for the different data sets are based on the availability of data and the desire to have data for whole years. Fixed station data were limited to the last five years. Based on 327 IAC 5-2-11.4(b)(1), a mixing zone is not allowed for BCCs, so stream data were not required for mercury.

The background concentration of each pollutant based on instream data was determined by calculating the geometric mean of the instream data for the pollutant (327 IAC 5-2-11.4(a)(8)). In 327 IAC 5-2-11.4(a)(8) a procedure is included for calculating background concentrations when the data set includes values below the limit of detection. The fixed station data are actually reported as less than the limit of

quantitation (LOQ). Therefore, a procedure based on best professional judgment was used for the fixed station data. The values below the LOQ were set equal to one-half the LOQ and then the geometric mean of the data set was calculated. The determination of background concentrations based on instream data is included in Attachments 2 through 5.

Pollutant loading data for some pollutants of concern are available for the Portage WWTP and pollutant loading data for most of the pollutants of concern in this WLA analysis are available for ArcelorMittal Burns Harbor. However, considering the multiple sources of flow upstream of U.S. Steel - Midwest and the distance between the dischargers, it was decided that the instream data would more accurately reflect the background concentrations. However, the effluent concentrations available for ArcelorMittal and Portage were compared to the background concentrations calculated using the instream data to determine if the background concentration of any pollutant may potentially be underestimated, and if so, whether the potentially higher background concentration would significantly impact the calculation of WQBELs. After reviewing the data for ArcelorMittal and Portage, the background concentrations calculated using the instream data were considered to be acceptable to calculate WQBELs.

The facility provided one background sample for chromium (VI) with a concentration of 0.0718 ug/l as part of their 2020 permit renewal application. After consideration of the trace metals sampling results for chromium (VI), the background concentration was set equal to 0.072 ug/l based on the application data. The background concentration of free cyanide was set equal to zero after consideration of the sampling results for total cyanide at the fixed station and the trace metals sampling results for free cyanide. There are no known upstream sources of formaldehyde, and for naphthalene and tetrachloroethylene, effluent data for ArcelorMittal Burns Harbor, the only known potential source upstream, have shown nondetectable concentrations. Therefore, the background concentrations of these organic chemicals were set equal to zero.

According to 5-2-11.4(a)(13), the 50th percentile downstream hardness is to be used to determine the criteria for those metals whose criteria are dependent on hardness. There is no downstream fixed station, so hardness data were obtained from fixed station BD 1. The 50th percentile hardness calculated using the last five years of data is 265 mg/l. The data are included in Attachment 6.

In addition to the aquatic life, human health and wildlife criteria that apply to all waters within the Great Lakes system, there are criteria in 327 IAC 2-1.5-8(j) that apply specifically to Lake Michigan. For the pollutants of concern, there is a Lake Michigan criterion for fluoride. The criterion for fluoride is more stringent than the aquatic life criteria that apply to Portage-Burns Waterway. In accordance with 327 IAC 5-2-11.4(a)(3), TMDLs, WLAs calculated in the absence of a TMDL, and preliminary WLAs

must ensure attainment of applicable water quality standards including all numeric and narrative water quality criteria set forth in 327 IAC 2-1.5-8 and 327 IAC 2-1.5-16, and Tier I criteria and Tier II values established under 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16. Therefore, to ensure that the concentration of fluoride in Portage-Burns Waterway meets the Lake Michigan criterion for this pollutant at the confluence of Portage-Burns Waterway with Lake Michigan, preliminary effluent limitations (PELs) were calculated using the Lake Michigan criterion and 100% dilution of effluent and receiving stream flow. These PELs were compared to the PELs based on the discharge meeting aquatic life, human health and wildlife criteria in Portage-Burns Waterway and the more stringent PELs were used as the applicable PELs.

The coefficient of variation used to calculate monthly average and daily maximum PELs was set equal to the default value of 0.6. The number of samples per month used to calculate monthly average PELs was based on the expected monitoring frequency. For cadmium, lead, nickel, silver, fluoride, free cyanide, formaldehyde, naphthalene and tetrachloroethylene, the number of samples per month was set equal to 2. For the other pollutants, the number of samples per month was set equal to 4. The spreadsheet used to calculate PELs is included in Attachment 7. The applicable PELs for fluoride are based on the Lake Michigan criterion.

Reasonable Potential Analysis for WET

U.S. EPA disapproved the reasonable potential procedure for whole effluent toxicity at 327 IAC 5-2-11.5(c)(1). In place of 5-2-11.5(c)(1), IDEM is required to apply Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132. The following analysis is based on Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132.

Effluent Data

The permit renewal effective April 1, 2016 required the U.S. Steel - Midwest Plant to conduct whole effluent toxicity (WET) testing quarterly using *Ceriodaphnia dubia* and fathead minnow. As allowed under the permit, monitoring for fathead minnow was discontinued after three tests. WET data from May 2017 to September 2020 are included in Attachment 8. The first three tests were conducted to demonstrate successful completion of a toxicity reduction evaluation (TRE). Chronic toxicity was calculated using the NOEC and IC25 values.

Reasonable Potential Analysis for Acute WET

The WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above the numeric interpretation of the narrative criterion for acute WET at 2-1.5-8(b)(1)(E)(ii) when effluent specific WET data demonstrates that:

$$(TUa \text{ effluent}) \times (B) \times (\text{effluent flow}) / (Qad + \text{effluent flow}) > AC$$

where,

TUa effluent = maximum acute WET result

B = multiplying factor from 5-2-11.5(h)

effluent flow = effluent flow used to calculate WQBELs for individual pollutants

Qad = amount of receiving water available for dilution

AC = numeric interpretation of the narrative criterion for acute WET

For U.S. Steel - Midwest, the following apply:

TUa effluent = 6.2 TUa (*Ceriodaphnia dubia*)

B = 1.6 (based on 18 samples and a CV of 0.9)

effluent flow = 17 mgd

Qad = 0.0 mgd (an alternate mixing zone has not been approved for acute WET)

AC = 1.0 TUa (the applicable numeric interpretation of the narrative criterion for acute WET for the case where an alternate mixing zone for acute WET has not been approved)

$$(6.2 \text{ TUa}) \times (1.6) \times (17 \text{ mgd}) / (0.0 \text{ mgd} + 17 \text{ mgd}) = 9.9 \text{ TUa}$$

The calculated value is greater than 1.0 TUa, so there is reasonable potential for acute WET.

Reasonable Potential Analysis for Chronic WET

The WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above the numeric interpretation of the narrative criterion for chronic WET at 2-1.5-8(b)(2)(A)(iv) when effluent specific WET data demonstrates that:

$$(TUC_{\text{effluent}}) \times (B) \times (\text{effluent flow}) / (Q_{ad} + \text{effluent flow}) > CC$$

where,

TUc effluent = maximum chronic WET result

B = multiplying factor from 5-2-11.5(h)

effluent flow = effluent flow used to calculate WQBELs for individual pollutants

Qad = amount of receiving water available for dilution

CC = numeric interpretation of the narrative criterion for chronic WET

For U.S. Steel – Midwest, the following apply:

TUc effluent = >15.2 TUc (*Ceriodaphnia dubia*)

B = 2.0 (based on 18 samples and a CV of 1.5)

effluent flow = 17 mgd

Qad = 16.25 mgd (25% of the Q7,10 (65 mgd))

CC = 1.0 TUc

$$(>15.2 \text{ TUc}) \times (2.0) \times (17 \text{ mgd}) / (16.25 \text{ mgd} + 17 \text{ mgd}) = >15.5 \text{ TUc}$$

Since the calculated value is greater than 1.0 TUc, there is reasonable potential for chronic WET.

Reasonable Potential Analysis for Individual Pollutants

Calculation of Projected Effluent Quality

A reasonable potential analysis was conducted for free cyanide which is currently limited at Outfall 004. The current limit was established in the 2011 permit renewal based on a reasonable potential analysis conducted with a limited dataset. A reasonable potential analysis was conducted for which is currently monitored at Outfall 004. A reasonable potential analysis was also conducted for formaldehyde based on data reported on Form 2C of the 2020 permit renewal application. A reasonable potential analysis for hexavalent chromium, total chromium, zinc, fluoride, total cyanide, naphthalene and tetrachloroethylene, which are limited at internal Outfall 304, but not monitored at Outfall 004, was not conducted based on a review of Outfall 004 data provided with the permit renewal application and internal Outfall 304 data for these pollutants.

The effluent data used in the reasonable potential analysis were provided by the facility in electronic format and obtained from monthly monitoring reports. Data for the period April 2016

through October 2020 were used in the analysis for mercury. Data for free cyanide from April 2016 through December 2020 were used. Due to the large number of samples, the data for mercury and free cyanide are not included in this report. The facility provided the following data for formaldehyde which were summarized on the Form 2C for Outfall 004: 2.2 mg/l (5-27-2020), <0.05 mg/l (7-27-2020), 0.102 mg/l (8-17-2020) and 0.123 mg/l (8-31-2020). The facility also provided the following data for formaldehyde on the Form 2C for internal Outfall 204: 4.3 mg/l (5-27-2020), 0.075 mg/l (7-27-2020), 0.413 mg/l (8-17-2020) and 0.545 mg/l (8-31-2020). Samples for formaldehyde collected at internal Outfall 104 on the same days as those for Outfall 004 and internal Outfall 204 in May and July 2020 were reported as non-detect. The effluent data include values reported as less than (<) the LOD. These values were assigned the reported less than value. Monthly averages were calculated for mercury and free cyanide for those months where at least two data points were available.

Comparison of PEQs to PELs

The reasonable potential analysis is included in Attachment 9. The results show that a projected effluent quality (PEQ) does not exceed a PEL for free cyanide, but it does for mercury and formaldehyde. Therefore, based on the reasonable potential statistical procedure, water quality-based effluent limitations (WQBELs) are not required for free cyanide, but they are required for mercury and formaldehyde.

Calculation of Water Quality-based Effluent Limitations

The PELs for mercury and formaldehyde in Attachment 7 are based on water quality criteria or values and may be included in an NPDES permit as WQBELs. For each pollutant receiving technology-based effluent limitations (TBELs) and for which water quality criteria or values exist or can be developed, concentration and corresponding mass-based WQBELs were calculated. For U.S. Steel – Midwest the pollutants receiving TBELs for which WQBELs can be calculated are cadmium, hexavalent chromium, total chromium, copper, lead, nickel, silver, zinc, total cyanide, fluoride, naphthalene and tetrachloroethylene. For these pollutants, the PELs in Attachment 7 are based on water quality criteria or values and may be applied as WQBELs. The mass-based WQBELs for Outfall 004 will be compared to the mass-based TBELs at internal Outfall 304. Since the facility is authorized to discharge up to the mass-based TBELs, if the mass-based TBELs exceed the mass-based WQBELs, the pollutant may be discharged at a level that will cause an excursion above a numeric water quality criterion or value under 2-1.5 and WQBELs are required for the pollutant at the final outfall.

List of Attachments

Attachment 1: Map of Outfall Location

Attachments 2 thru 5: Calculation of Background Concentrations

Attachment 6: Calculation of Water Quality Characteristics

Attachment 7: Calculation of Preliminary Effluent Limitations

Attachment 8: Whole Effluent Toxicity Data

Attachment 9: Reasonable Potential to Exceed Analysis for Individual Pollutants

Attachment B Technology Based Limits

Technology-based Effluent Limitations - TSS

Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.92(b)(2) I	7,548	0.0818	0.035	617.43	264.18
304 Acid Pickling	420.92(b)(4) I	* 1	5.72 (kg/day)	2.45 (kg/day)	12.58	5.39
304 Cold Forming	420.102(a)(2) J	16,106	0.00626	0.00313	100.82	50.41
304 Cold Forming	420.102(a)(3) J	5,190	0.0751	0.0376	389.77	195.14
304 Cold Forming	420.102(a)(5) J	2,862	0.1	0.0501	286.2	143.39
304 Alkaline Cleaning	420.112(a) K	1,990	0.073	0.0313	145.27	62.29
304 Alkaline Cleaning	420.112(b) K	2,094	0.102	0.0438	213.59	91.72
304 Alkaline Cleaning	420.114(a) K	1,446	0.0146	0.00626	21.11	9.05
304 Hot Coating	420.122(a)(1) L	3,533	0.175	0.0751	618.28	265.33
304 Hot Coating	420.124(a)(1) L	1,278	0.0438	0.0188	55.98	24.03
304 Hot Coating	420.124(c)(1) L	* 1	5.72 (kg/day)	2.45 (kg/day)	12.58	5.39
304 Metal Finishing	433.13(a)	2.3	60	31	115.61	595
Total					2589.22	1711.32
Previous Limits					2290	1147

Technology-based Effluent Limitations - Oil & Grease

Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.92(b)(2) I	7,548	0.035	0.0117	264.18	88.31
304 Acid Pickling	420.92(b)(4) I	* 1	2.45 (kg/day)	0.819 (kg/day)	5.39	1.8
304 Cold Forming	420.102(a)(2) J	16,106	0.00261	0.00104	42.04	16.75
304 Cold Forming	420.102(a)(3) J	5,190	0.0813	0.0125	162.45	64.88
304 Cold Forming	420.102(a)(5) J	2,862	0.0417	0.0167	119.35	47.8
304 Alkaline Cleaning	420.112(a) K	1,990	0.0813	0.0104	62.29	20.7
304 Alkaline Cleaning	420.112(b) K	2,094	0.0438	0.0146	91.72	30.57
304 Alkaline Cleaning	420.114(a) K	1,446	0.00626	0.00209	9.05	3.02
304 Hot Coating	420.122(a)(1) L	3,533	0.0751	0.025	265.33	88.33
304 Hot Coating	420.124(a)(1) L	1,278	0.0188	0.00626	24.03	8
304 Hot Coating	420.124(c)(1) L	* 1	2.45 (kg/day)	0.819 (kg/day)	5.39	1.8
304 Metal Finishing	433.13(a)	**2.3	52	26	998.06	499.03
Total					2049.28	870.99
Previous Limits					765	

Technology-based Effluent Limitations - Chromium						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.92(b)(2) I	7,548				
304 Cold Forming	420.103(a)(2) J	16,106				
304 Cold Forming	420.103(a)(3) J	5,190				
304 Cold Forming	420.103(a)(5) J	2,862				
304 Alkaline Cleaning	420.112(a) K	1,990				
304 Alkaline Cleaning	420.112(b) K	2,094				
304 Alkaline Cleaning	420.114(a) K	1,446				
304 Hot Coating	420.122(a)(1) L	3,533				
304 Hot Coating	420.124(a)(1) L	1,278				
304 Metal Finishing	433.14(a)	**2.3	2.77	1.71	53.17	32.82
			Total		53.17	32.82
			Previous Limits		30	10
			WQBEL in Mass		92	46

Technology-based Effluent Limitations - Lead						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.93(b)(2) I	7,548	0.000526	0.000175	3.97	1.32
304 Acid Pickling	420.93(b)(4) I	* 1	0.0368 (kg/day)	0.0123 (kg/day)	0.081	0.027
304 Cold Forming	420.103(a)(2) J	16,106	0.0000469	0.0000156	0.76	0.25
304 Cold Forming	420.103(a)(3) J	5,190	0.000563	0.000188	2.92	0.98
304 Cold Forming	420.103(a)(5) J	2,862	0.000751	0.00025	2.15	0.72
304 Alkaline Cleaning	420.112(a) K	1,990				
304 Alkaline Cleaning	420.112(b) K	2,094				
304 Alkaline Cleaning	420.114(a) K	1,446				
304 Hot Coating	420.123(a)(1) L	3,533	0.00113	0.000376	3.99	1.33
304 Hot Coating	420.124(a)(1) L	1,278	0.000282	0.0000939	0.36	0.12
304 Hot Coating	420.124(c)(1) L	* 1	0.0368 (kg/day)	0.0123 (kg/day)	0.081	0.027
304 Metal Finishing	433.14(a)	**2.3	0.69	0.43	13.24	8.25
			Total		27.55	13.02
			Previous Limits		10.5	6
			WQBEL in Mass		9.9	5.8

Technology-based Effluent Limitations - Zinc						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.93(b)(2) I	7,548	0.000701	0.000234	5.29	1.77
304 Acid Pickling	420.93(b)(4) I	* 1	0.0491 (kg/day)	0.0164 (kg/day)	0.11	0.036
304 Cold Forming	420.103 (a)(2) J	16,106	0.0000313	0.0000104	0.5	0.17
304 Cold Forming	420.103 (a)(3) J	5,190	0.000376	0.000125	1.95	0.65
304 Cold Forming	420.103 (a)(5) J	2,862	0.000501	0.000167	1.43	0.48
304 Alkaline Cleaning	420.112 (a) K	1,990				
304 Alkaline Cleaning	420.112 (b) K	2,094				
304 Alkaline Cleaning	420.114 (a) K	1,446				
304 Hot Coating	420.123 (a)(1) L	3,533	0.0015	0.0005	5.3	1.77
304 Hot Coating	420.124 (a)(1) L	1,278	0.000376	0.0000125	0.48	0.16
304 Hot Coating	420.124 (c)(1) L	* 1	0.0491 (kg/day)	0.0164 (kg/day)	0.11	0.036
304 Metal Finishing	433.14(a)	**2.3	2.61	1.48	50.1	28.41
Total					65.27	33.48
Previous Limits					30	10
WQBEL in Mass					77	38

Technology-based Effluent Limitations - Nickel						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.92(b)(2) I	7,548				
304 Cold Forming	420.103 (a)(2) J	16,106				
304 Cold Forming	420.103 (a)(3) J	5,190				
304 Cold Forming	420.103 (a)(5) J	2,862				
304 Alkaline Cleaning	420.112 (a) K	1,990				
304 Alkaline Cleaning	420.112 (b) K	2,094				
304 Alkaline Cleaning	420.114 (a) K	1,446				
304 Hot Coating	420.122 (a)(1) L	3,533				
304 Hot Coating	420.124 (a)(1) L	1,278				
304 Metal Finishing	433.14(a)	**2.162	3.98	2.38	71.81	42.92
Total					71.81	42.92
Previous Limits					57.1	33.3
WQBEL in Mass					54	31

Technology-based Effluent Limitations - Napthalene

Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 =		Effluent Limitations (lbs/day)
			mg/l)		
			Daily Maximum	Monthly Average	Daily Maximum
304 Acid Pickling	420.92(b)(2) I	7,548			
304 Cold Forming	420.103(a)(2) J	16,106	0.0000104		0.17
304 Cold Forming	420.103(a)(3) J	5,190	0.000125		0.65
304 Cold Forming	420.103(a)(5) J	2,862	0.000167		0.48
304 Alkaline Cleaning	420.112(a) K	1,990			
304 Alkaline Cleaning	420.112(b) K	2,094			
304 Alkaline Cleaning	420.114(a) K	1,446			
304 Hot Coating	420.122(a)(1) L	3,533			
304 Hot Coating	420.124(a)(1) L	1,278			
304 Metal Finishing	433.13(a)	**2.3			
			Total		1.3
			Previous Limits		0.86
			WQBEL in Mass		12

Technology-based Effluent Limitations - Tetrachloroethylene

Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 =		Effluent Limitations (lbs/day
			mg/l)		
			Daily Maximum	Monthly Average	Daily Maximum
304 Acid Pickling	420.92(b)(2) I	7,548			
304 Cold Forming	420.103(a)(2) J	16,106	0.0000156		0.25
304 Cold Forming	420.103(a)(3) J	5,190	0.000188		0.98
304 Cold Forming	420.103(a)(5) J	2,862	0.00025		0.72
304 Alkaline Cleaning	420.112(a) K	1,990			
304 Alkaline Cleaning	420.112(b) K	2,094			
304 Alkaline Cleaning	420.114(a) K	1,446			
304 Hot Coating	420.122(a)(1) L	3,533			
304 Hot Coating	420.124(a)(1) L	1,278			
304 Metal Finishing	433.13(a)	**2.3			
			Total		1.95
			Previous Limits		1.29
			WQBEL in Mass		27

		Technology-based Effluent Limitations - Hex Chromium				
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Acid Pickling	420.92(b)(2) I	7,548				
304 Cold Forming	420.102(a)(2) J	16,106				
304 Cold Forming	420.102(a)3 J	5,190				
304 Cold Forming	420.102(a)(5) J	2,862				
304 Alkaline Cleaning	420.112(a) K	1,990				
304 Alkaline Cleaning	420.112(b) K	2,094				
304 Alkaline Cleaning	420.114(a) K	1,446				
304 Hot Coating	420.123(a)(1) L	3,533	0.00015	0.0000501	0.53	0.18
304 Hot Coating	420.124(a)(1) L	1,278	0.0000376	0.0000125	0.05	0.02
304 Hot Coating	420.124(c)(1) L	* 1	0.0049 (kg/day)	0.00163 (kg/day)	0.011	0.0036
304 Metal Finishing	433.13(a)	**2.3				
			Total		0.59	0.20
			Previous Limits		0.51	0.17
			WQBEL in Mass		4.5	2.3

Technology-based Effluent Limitations - T. Copper						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum Monthly Average		Daily Maximum Monthly Average	
304 Metal Finishing	433.14(a)	**2.162	3.38	2.07	60.98	37.35
			Total		60.98	37.35
			Previous Limits		8.2	4.7
			WQBEL in Mass		9.4	4.7

Technology-based Effluent Limitations - T. Cadmium						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Metal Finishing	433.14(a)	**2.162	0.69	0.26	12.45	4.69
Total					12.45	4.69
Previous Limits					2.1	1.2
WQBEL in Mass					2.4	1.4

Technology-based Effluent Limitations - T. Cyanide						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Metal Finishing	433.14(a)	**2.3	1.2	0.65	23.03	12.48
Total					23.03	12.48
Previous Limits					7.95	3.41
WQBEL in Mass					31000	77000

Technology-based Effluent Limitations - T. Silver						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Metal Finishing	433.14(a)	**2.162	0.43	0.24	7.76	4.33
Total					7.76	4.33
Previous Limits					0.021	0.012
WQBEL in Mass					0.024	0.014

Technology-based Effluent Limitations - T. TTO						
Operation	40 CFR	Production in 1,000 lbs/day * # scrubbers **flow (MGD)	Multiplication factor: (40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
304 Metal Finishing	433.14(a)	**2.162	2.13		38.43	
Total					38.43	
Previous Limits					38.43	